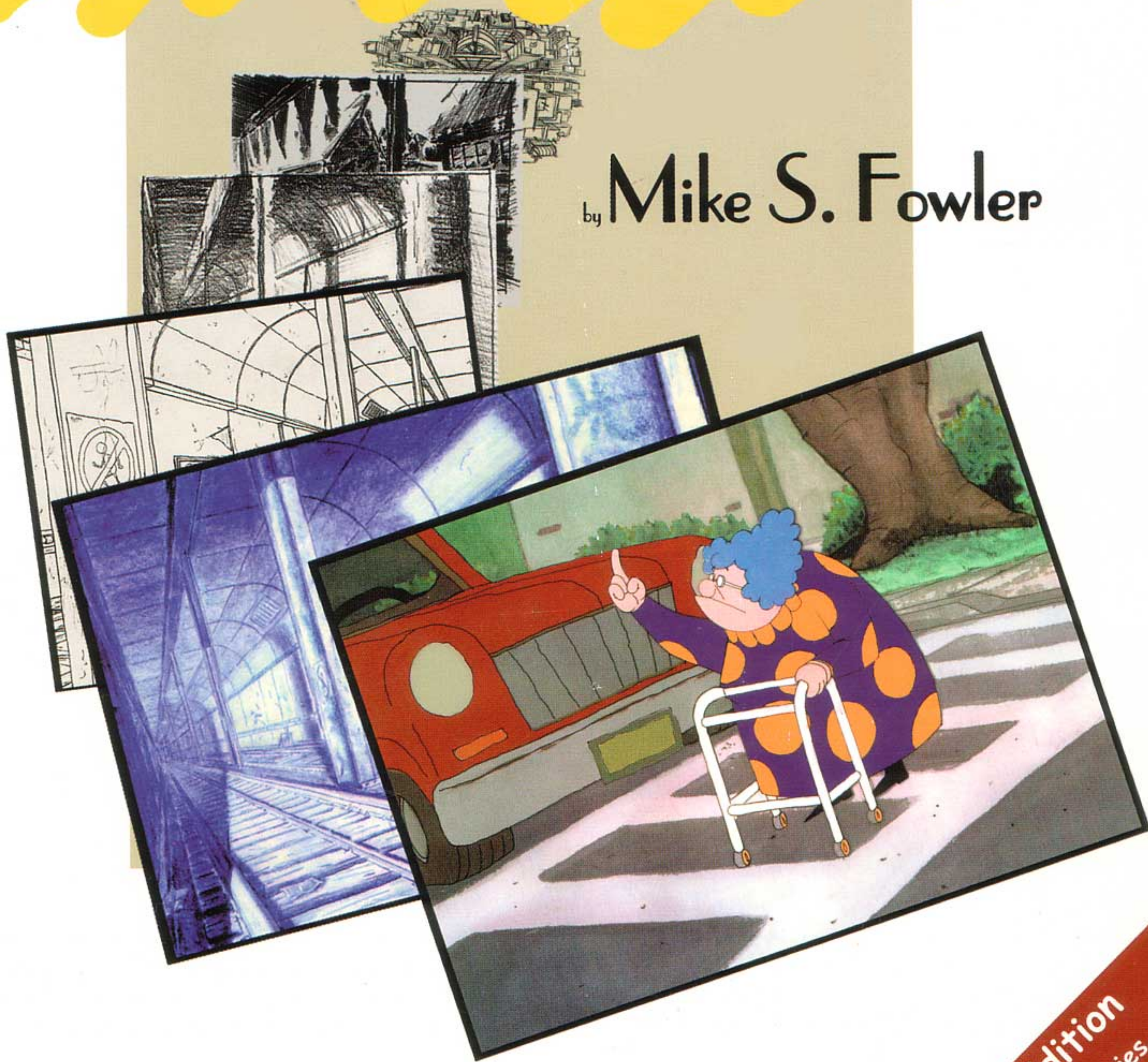


# Animation

BACKGROUND LAYOUT:

by Mike S. Fowler



*From Student to Professional*

Limited Edition  
Only 1000 Copies  
Printed





# **Animation**

BACKGROUND LAYOUT:  
*From Student to Professional*

by

Mike S. Fowler

Fowler Cartooning Ink Publishing

To

My parents and loving family,  
Paola, Christina, Michelle and Alexander  
who have given more than there was to give.

## Copyright

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# Animation

## BACKGROUND LAYOUT:

### *From Student to Professional*

## INTRODUCTION

The reason behind creating "**Animation Background Layout: From Student to Professional**" stemmed from the frustration I had as an animation student and now, as an instructor. This frustration was encountered when searching for extra layout material over and above the lengthy illustrations and classroom lecture notes.

There are countless books on perspective, tonal studies, and large architectural manifests that describe the process to become a superior draftsman. There are also many powerful animation books that eloquently explain character creation and the importance of the animation clean up line. Some books such as *The Illusion of Life* and the recent Richard William's *The Animators Survival Guide* have become industry appointed bibles of the animation art form, but what about information about animation background layouts?

Many of my students that arrive on the first day of the layout class only know of layout as something to do with advertising or publishing, with little idea of what it actually entails.

They ask, "Who creates the background drawings? Why is it created? Do I need to know how to use perspective? What is staging? Do layout artists make up whatever they want for the background? What is a model sheet or a location design? Do layout artists only draw the background? Are there any technical things to know about in layout? Who does the painting of the backgrounds? How does character animation get put over top of the background? Who gets the drawing after the layout department? What is the difference between animation background layout verses character layout?"

Like most tasks in life, we learn short cuts or tricks to complete the job more efficiently and quicker than others. This is what makes each of us unique or even more marketable than the next person in the workforce. Is it wrong? I am just as guilty as the next person. Layout, animation and even teaching are no exceptions to this safe keeping of knowledge.



Recently I attended the internationally known Great Teacher's Seminar that was hosted by its founder, David Gottshall. He spoke about sharing our ideas with our peers. Sharing information to solve, understand and even enlighten each other to the fact that as an individual we know much, but as a group our collective talent is endless. Then he said jokingly about sharing this knowledge, "There are two rules. The first rule is: Tell them all that has to be told, but don't tell them everything."

Throughout this book I have called upon the experience and knowledge of both my peers, layout artist-professionals from animation studios around the world, and my own diverse background as a layout artist, supervisor and instructor of animation and layout.

My intention was to create an animation layout book that taught, explored the rationale behind various functions of layout and demonstrated these principles with clear visual examples. After all, I wanted a layout book that I could use as a support tool for my own college animation classes.

For this reason, **Animation Background Layout: From Student to Professional**, was designed, chapter-by-chapter, to sequentially build on fundamental components of layout with easy to follow step-by-step examples and diagrams. Many answers to how, what, who and why layout is created are covered by using variations of animation studio techniques and guidelines. Personal insight and relevant tales of the trade add to the direction of this book. From start to finish, my intent is to give you, the student and professional alike, the opportunity to experience animation background layout.

Mike S. Fowler

#### About the Author:

Mike S. Fowler has a passion for art and animation. His animation abilities as a supervisor, layout artist, poser, storyboard artist, and fun pack designer are showcased in numerous shows. Credits include: Bob and Margaret, Ned's Newt, Hoze Houndz, Elliot the Moose, Little Bear, Eckhart, Maggie and the Ferocious Beast, Rainbow Fish, Anthony Ant, Franklin, Redwall, Ace Ventura, and Blazing Dragons to name a few.

Including being published political and panel cartoonist, graphic artist, and classical animation graduate from Sheridan College in Ontario, Mike has supervised various Flash web series, promotional bumpers for major television shows, and segments of an educational Flash-HTML based University learning program for U.S. and Canadian markets.

With the release of his first book, **Animation Background Layout: From Student to Professional**, Mike adds the credit of being a published author to his list of achievements.



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*Knowledge can be taught.  
Ambition can be demonstrated.  
 But Desire has to come from within.*

Anonymous



## INTRO TO PERSPECTIVE

Horizon Line  
Eye Level  
Point of View  
Station Point  
Line of Sight  
Field of Vision  
Picture Plane  
Convergence  
Diminution  
Vanishing Point  
One Point Perspective  
Two Point Perspective  
Three Point Perspective  
Incline Planes  
Foreshortening

## **INTRO TO PERSPECTIVE**

I have seen many students over the years, including myself, struggle with complicated methods and various approaches to perspective that lose all artistic design. I have also seen perspective demonstrated in ways that can never be recreated accurately time after time due to abstract instruction. There is no one way to create perspective. Try looking up the word perspective on the Internet, in a bookstore or in a library. The number of books and articles are simply staggering. My favourite in and out of print books on this and other subjects are listed at the end of this book under the chapter **FURTHER READINGS**.

As an animation instructor, I directly and indirectly teach perspective daily using a combination of several techniques and methods. Artists must be skilled and proficient in perspective no matter what medium they choose to work with. Perspective has become second nature to me and it took some time to figure out a suitable approach to explaining it for this book. Yes, there are computer backgrounds, but they are based upon hand drawn conceptual artwork.

This section will focus on a brief review of rudimentary perspective concepts through a few practical exercises and applications. I suggest you take your time to draw each portion of this chapter not once, but many times. Animation is based on understanding perspective. Practice, practice then practice again.

### **What is Perspective?**

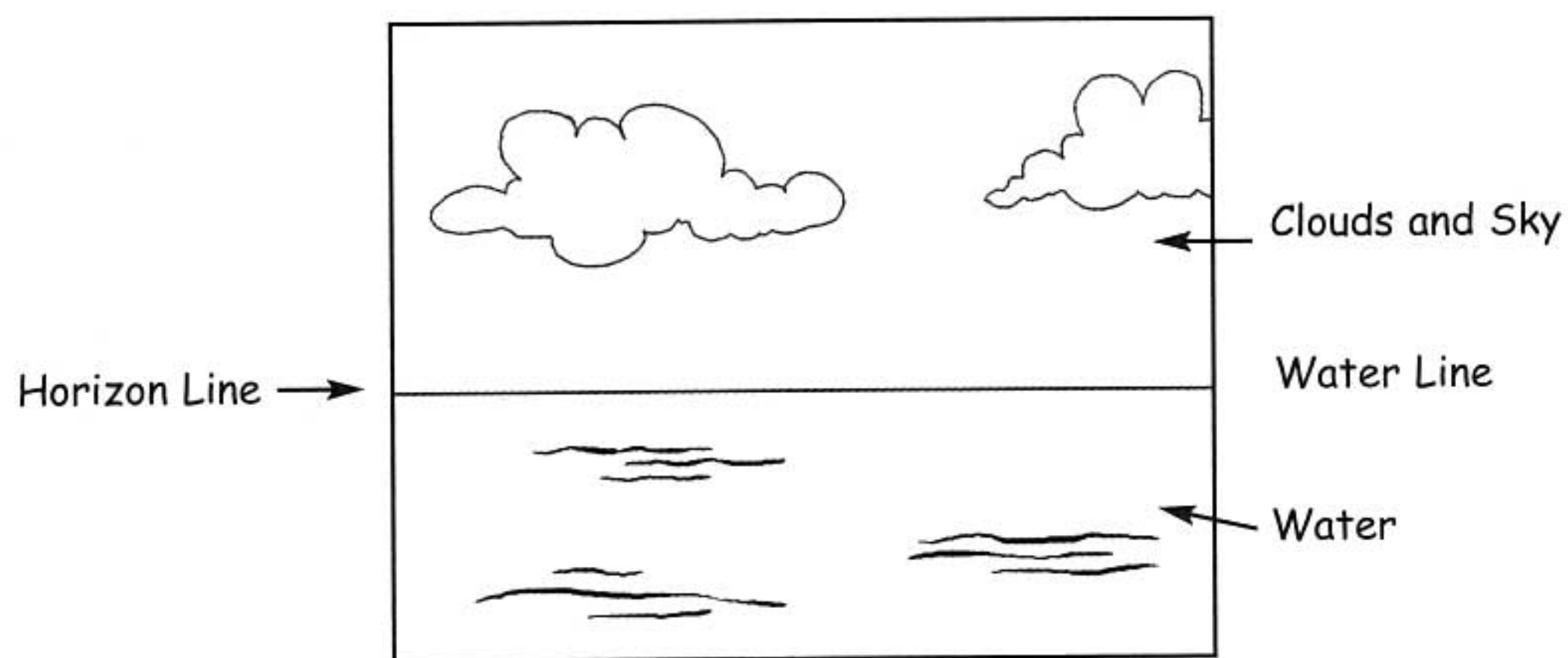
Perspective is a theory of drawing, which allows the artist a way to graphically depict three-dimensional objects on paper or other media, as they exist in space. The rules of perspective are many, but are based on the assumption that a single eye, from a fixed point of view, is looking at the subject being drawn. How each object is viewed in relation to other objects will determine a sense of depth, size relationship and false believability that the artwork is real or familiar to what we see in reality.

A three dimensional object is anything that has length, width and height. To avoid listing most everything in the world, a few examples include: a box, a car, an apple, a tree, a building, a person and a book, such as this one.



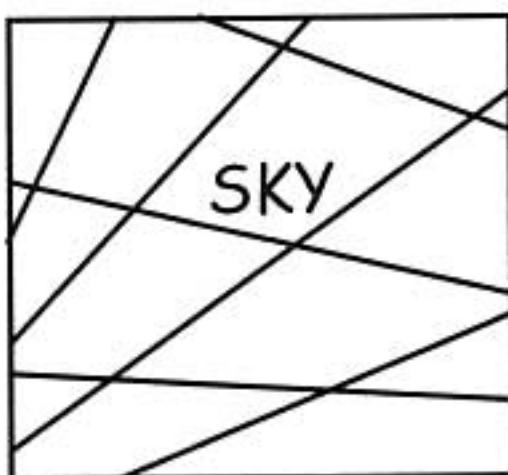
Each of the following perspective terms listed in this book are broken down to their base definition. They are further explained with a single visual or a step-by-step breakdown to facilitate understanding of the term. So, let us begin!

**Horizon Line (HL):** Is the continuous distant line at which the eye can see no further. A great example is standing on the beach shoreline looking out into the distance where the water line touches the sky. This line is the horizon line.

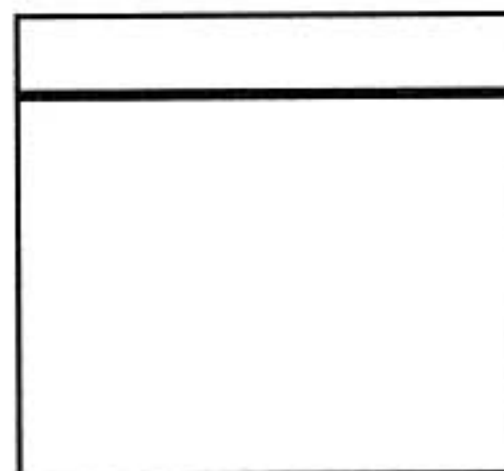


Depending on what angle you look up or down, the horizon line position changes and is not always visible.

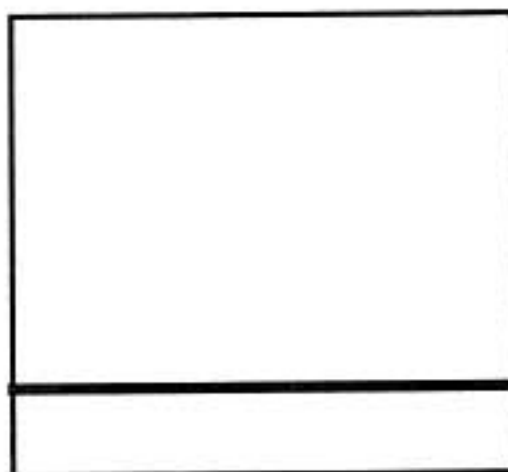
Below are five examples of various horizon lines. (HL)



**Very Low HL**  
(Up Shot)



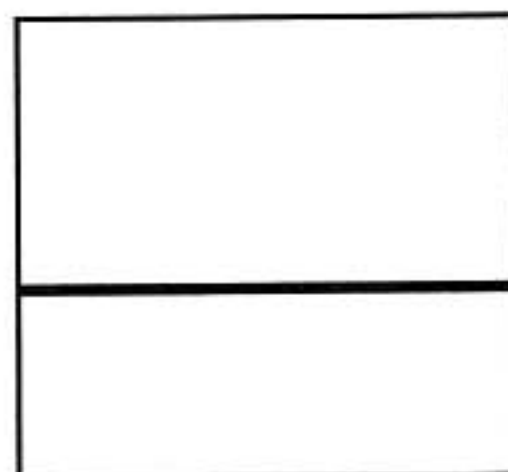
**High HL -**  
High Angle



**Low HL Low Angle**



**Very High HL**  
(Down Shot)



**Mid HL-Normal Angle**

Generally speaking the horizon line is not placed exactly in the middle of the picture. This looks too even and unnatural.

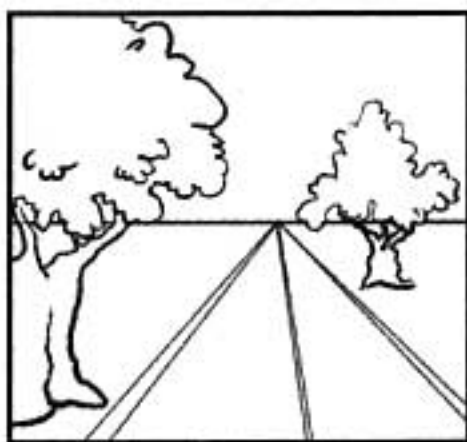


Many students tend to draw the horizon line at either the exact middle or at a high angle. The trick is to see this in your drawings and consciously lower the horizon line. Look at your own drawings to see how you draw.

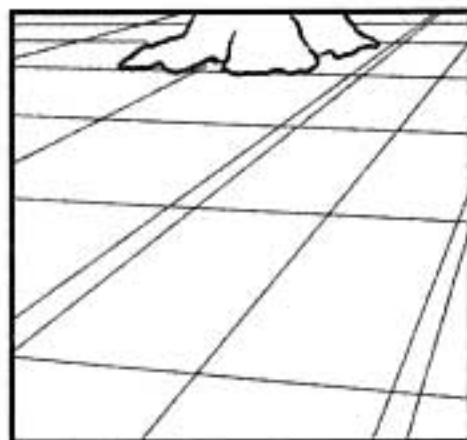
**Eye Level:** The level at which you are standing and looking at an object is known as the eye level. A baby will see everything from the floor upward. A six-foot adult will see the same room from a higher point of view. A bird looking down on a city street will have a much greater eye level.

Eye level and the horizon line are tied directly together. By changing the up or down level of where you look, the horizon line changes within our field of vision or picture.

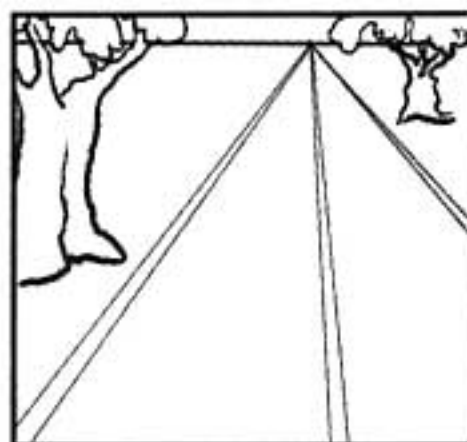
A long, flat, country road is a good example. Safely, we stand in the middle of the road and look off into the distance where the road seems to vanish into a point (Vanishing Point) on the horizon line.



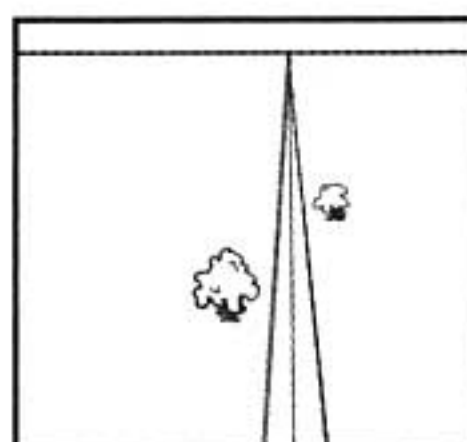
From where we are standing we see the road as we would normally in our daily lives.



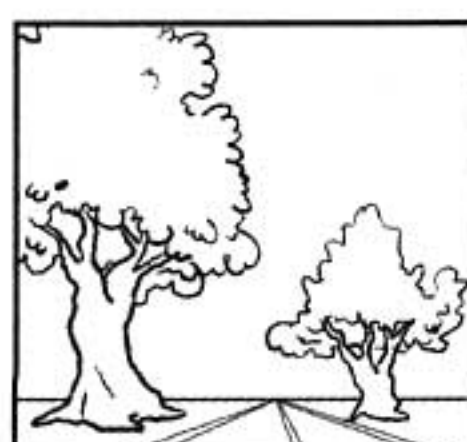
While standing, look down at the road near your feet. Where is the horizon line?



Look up slightly and notice that the horizon line is now within our point of view.



The same effect is created when looking down from an airplane. Our point of view is from the airplane but our eye level shows more ground than sky.



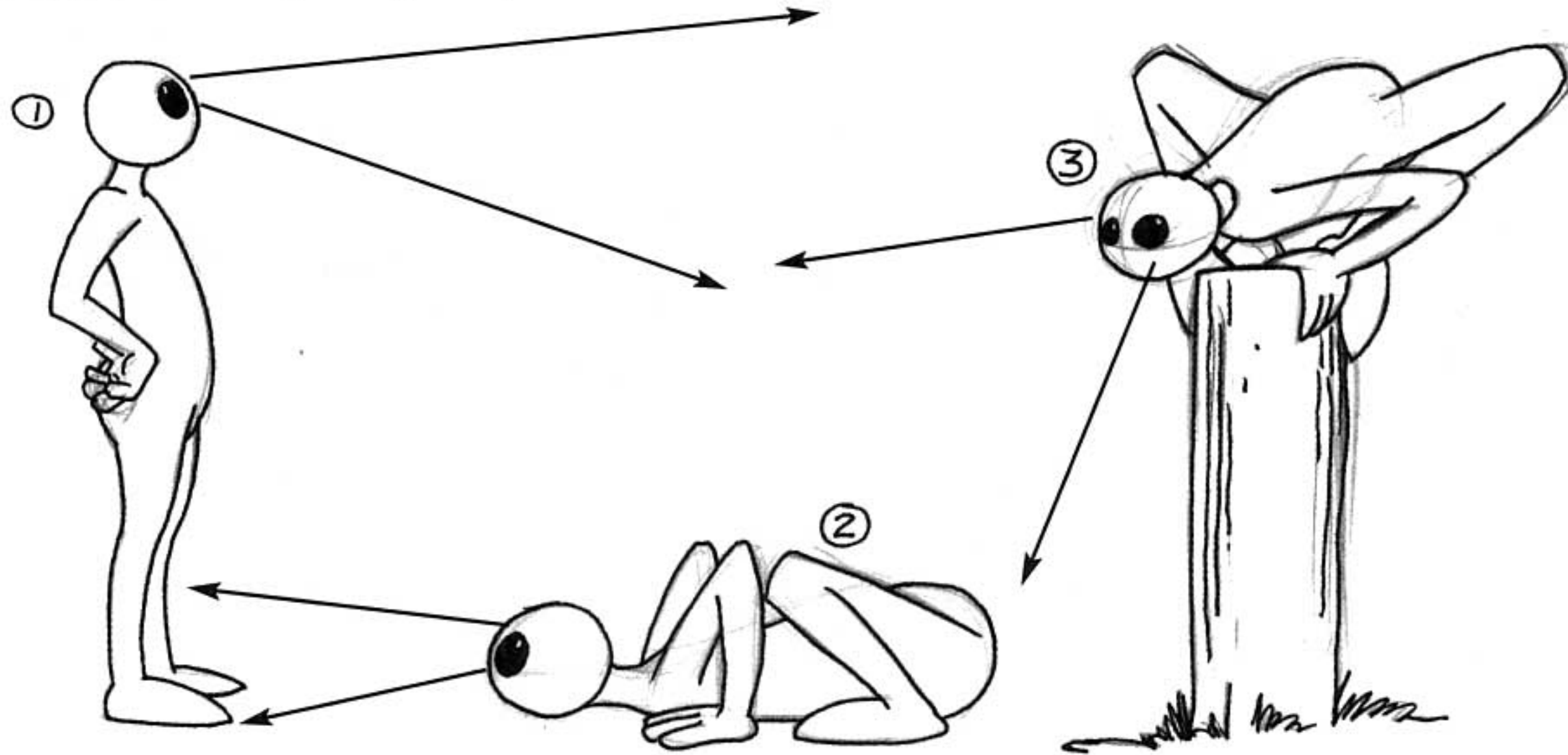
Again, safely check for traffic then sit on the road. From where we are sitting, at a lower point of view, we see more sky than ground. The horizon line or our eye level, is very low to the ground.



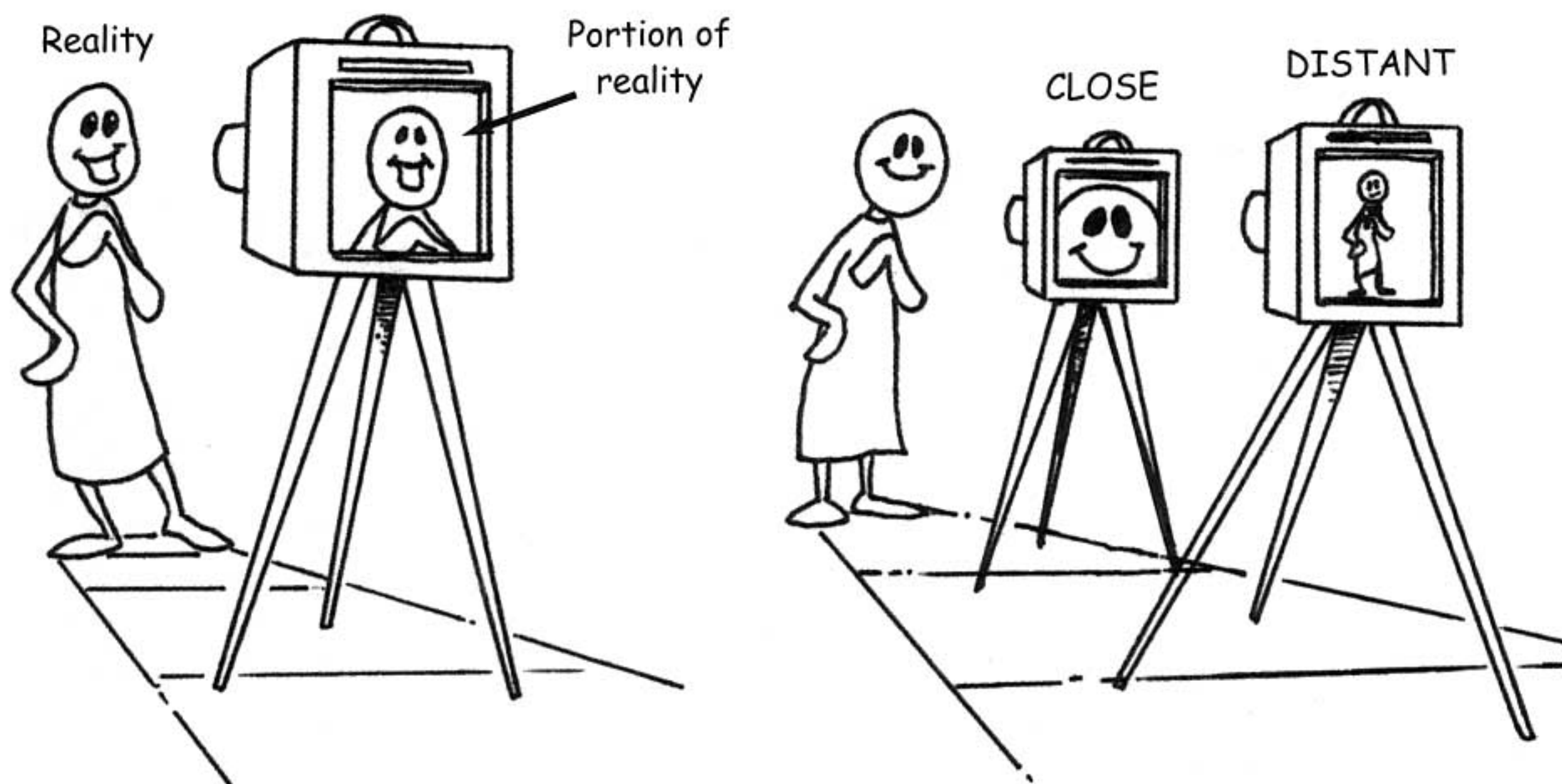
**Point of View (P.O.V.):** Can be described as what you see from where you are looking. I cannot get any simpler than that.

**Station Point:** This is the point from which the viewer is looking from.

**Line of Sight:** Without going in to unnecessary detail, think of the line of sight as what can be seen from your point of view.



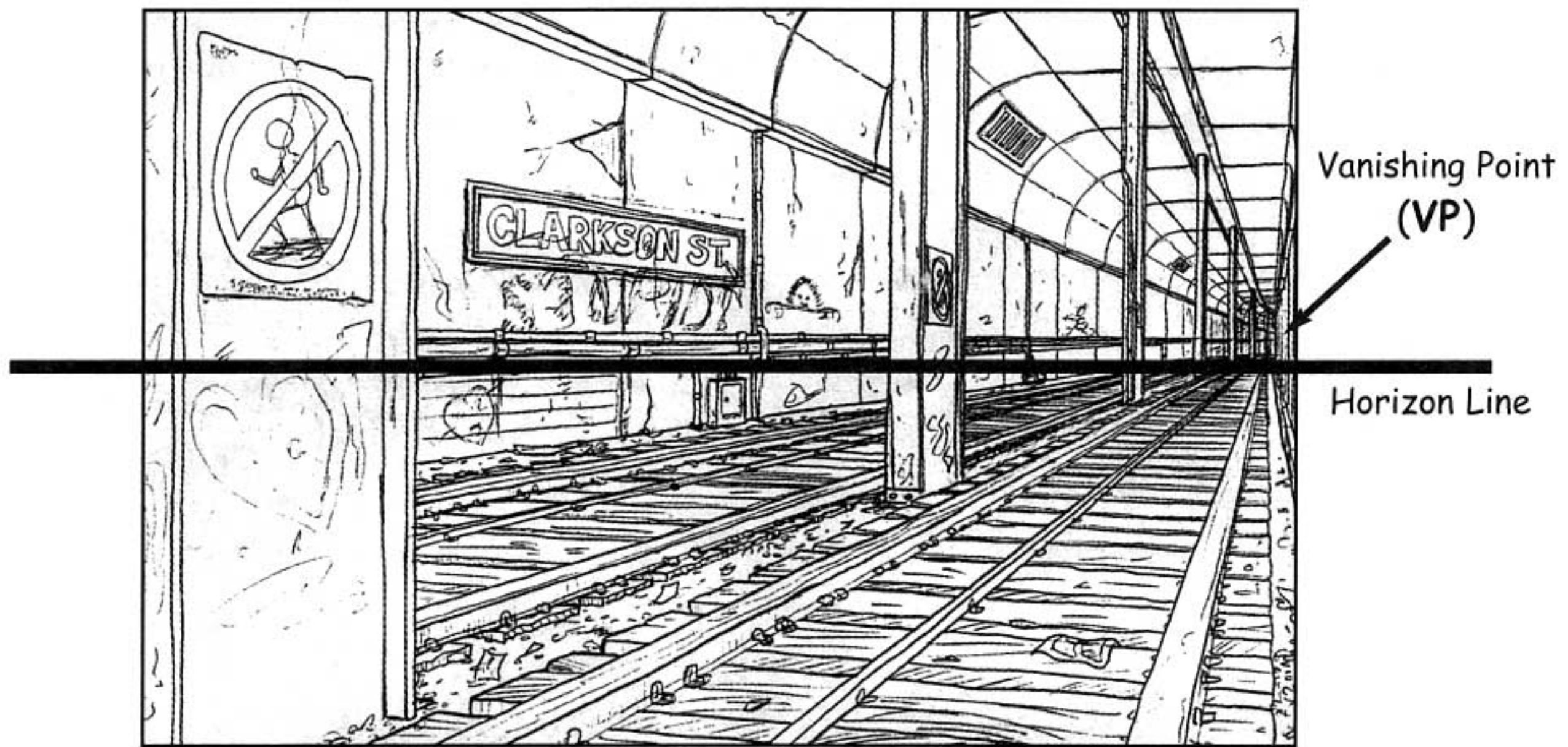
**Picture Plane:** This is similar to the Field of Vision however; the images we are looking at have been cropped or adjusted so that only a small portion can be seen. Look through the viewfinder of any still camera to find that only a portion of the world can be seen at any one time. By moving closer or farther away, more or less of the view can be seen through the viewfinder.



**Field of Vision:** Similar to the Picture Plane, the field of vision is all that can be seen from the viewer's eyes while standing at a stationary point.

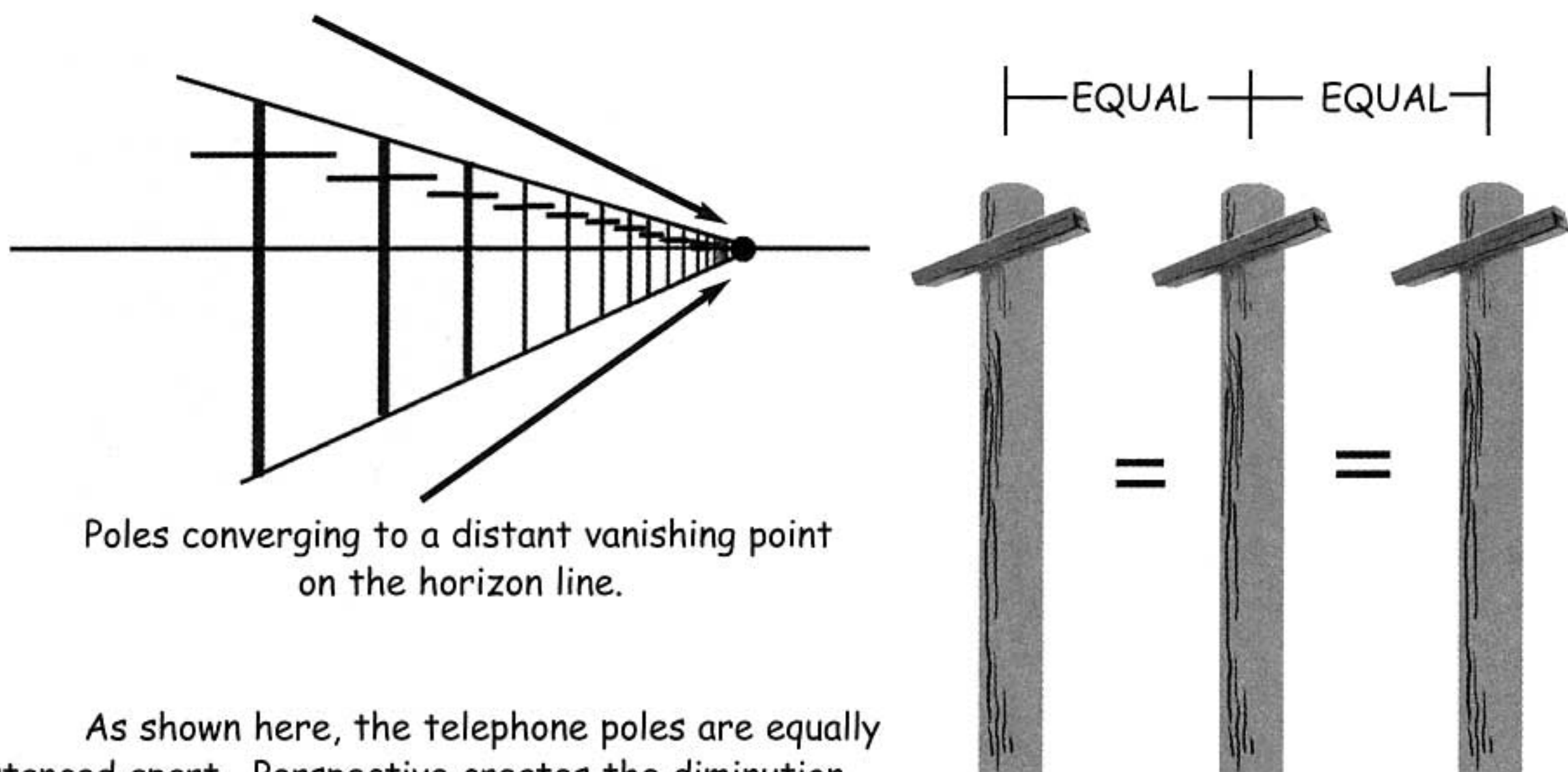


**Convergence:** Is the point in which all lines meet at one point in space. It is like the row of subway support beams or a subway track that extends far off into the distance. All the lines appear to meet together at the one distance vanishing point.



**Diminution:** This is the act of decreasing or reducing something as they are placed in perspective.

Using the telephone pole example above that shows the poles converging to a vanishing point in the distance, visually each pole has the appearance of getting smaller. In reality, each pole is exactly the same size. The illusion is created.



Poles converging to a distant vanishing point on the horizon line.

As shown here, the telephone poles are equally distanced apart. Perspective creates the diminution.

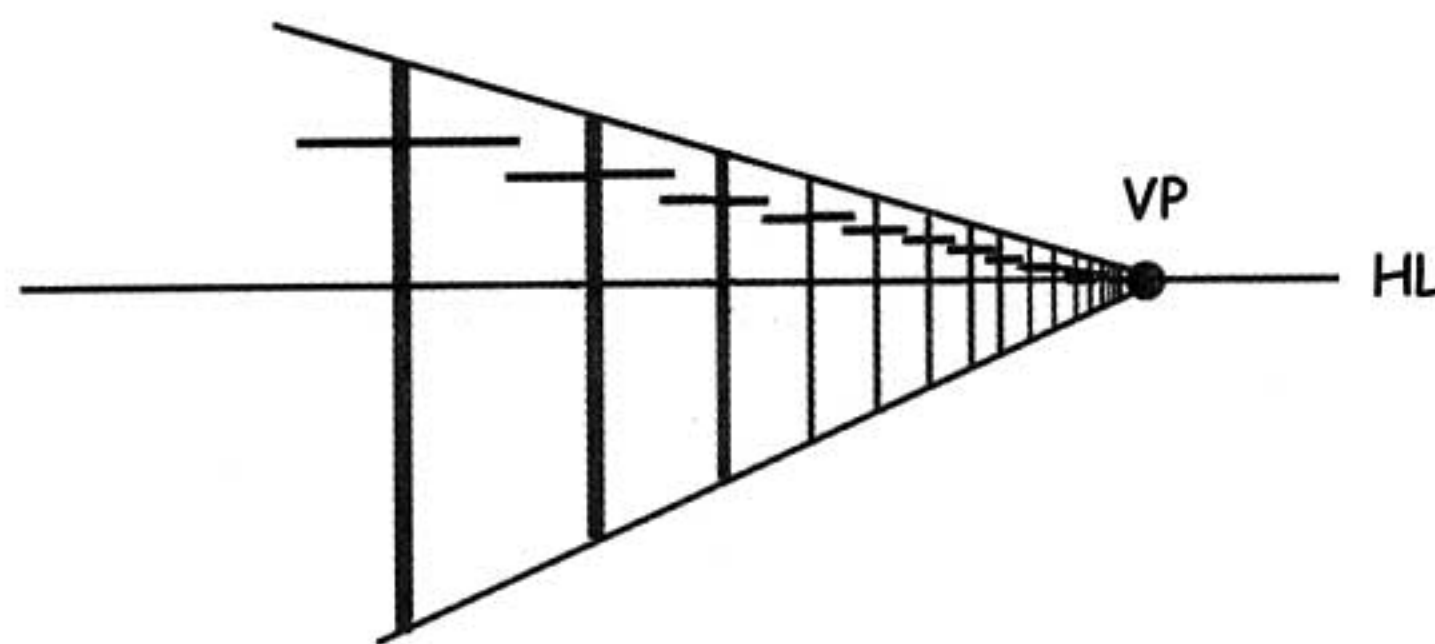


**Vanishing Point (VP):** This is a point where the edges of an object all seem to line up in the distance.

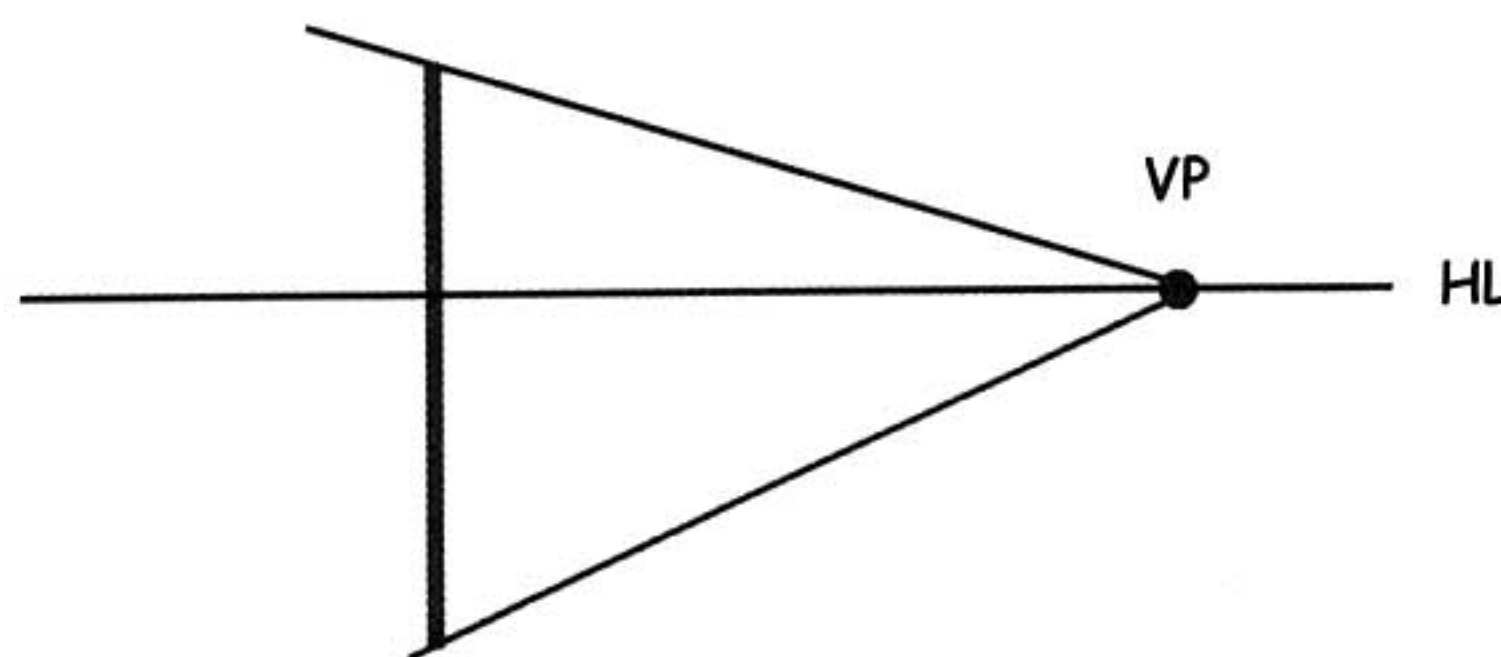
A drawing may have only one VP or it may contain several vanishing points depending on the complexity of the subject, and are almost always placed on the horizon line. An off-horizon line vanishing point is used to define planes such as stairs, hills, angles or roofs.

Returning to the vanishing point example of a continual line of telephone poles across the flat landscape, let us start with an exercise. From our stationary point of view, the telephone poles seem to get smaller and smaller until they vanish at one point along the horizon line as we discovered earlier. Those poles were randomly placed along the perspective lines.

*How do we make the telephone poles equal distance from each other?*

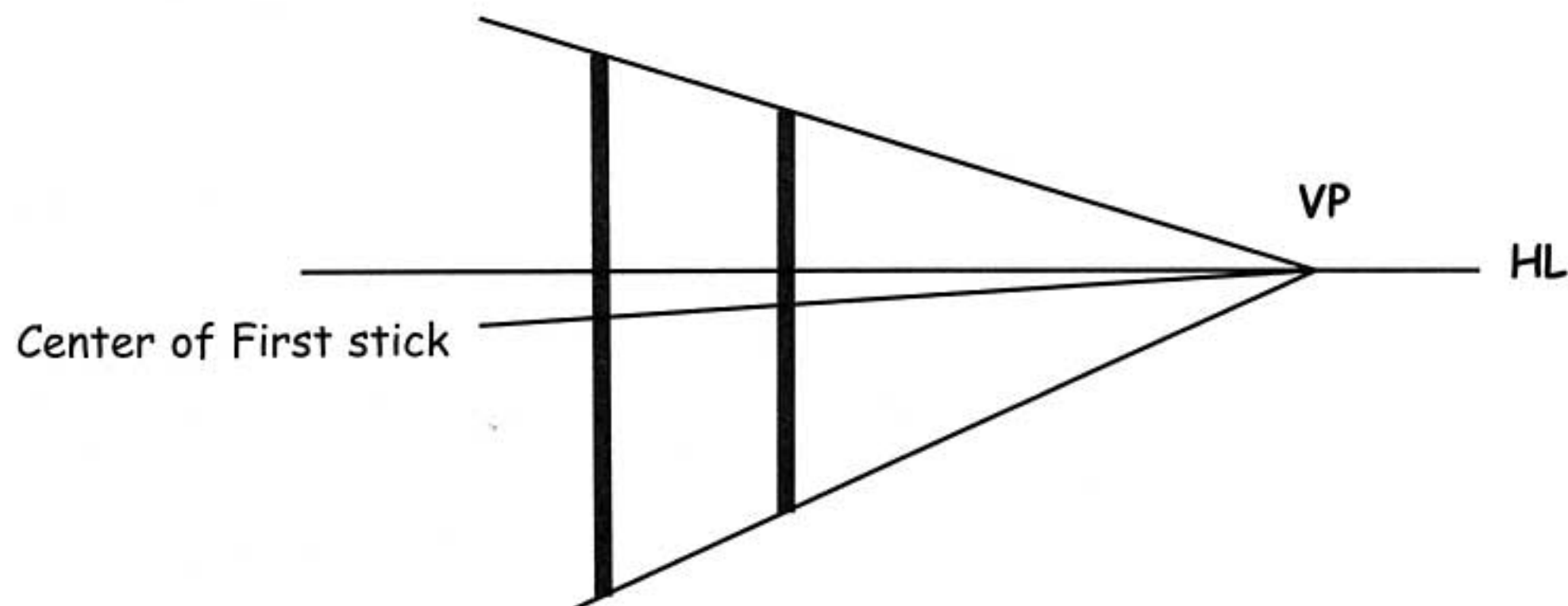


Start by drawing a horizon line with a vanishing point near half way. Draw one large stick that rises over and under the horizon line at a 90-degree angle. Use a straight edge to draw a line from the top and bottom of the stick back to the vanishing point.

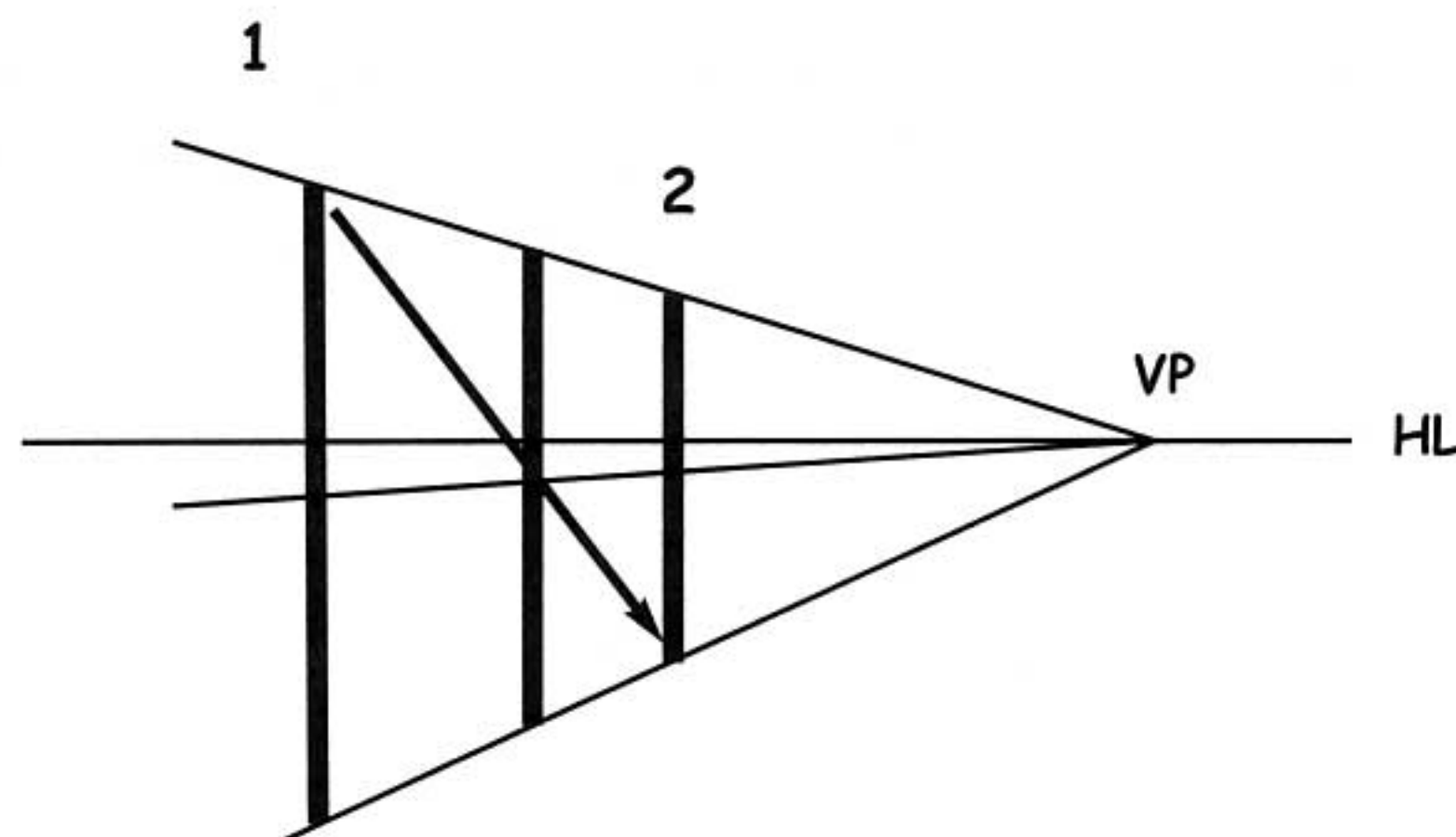




Using these perspective lines as a guide, draw another stick parallel to the first at a distance you think the poles should be apart.



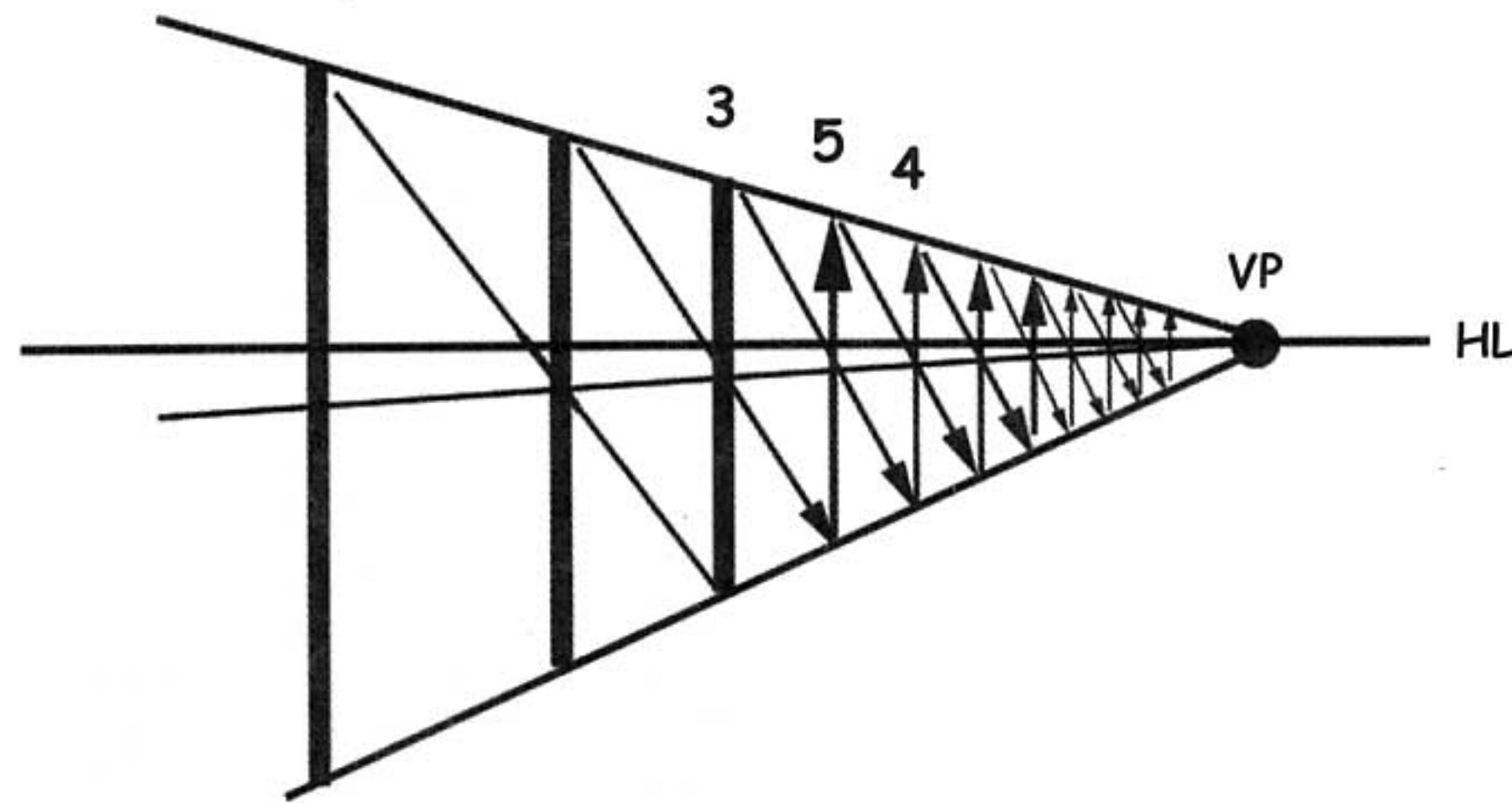
Find the center of the first stick and place a dot there. From this new point draw a perspective line back to the vanishing point. Now we have all the information needed to create evenly spaced sticks. From the top of the closest stick draw a straight line through the center of the other stick and continue until the line reached the bottom perspective line, (1).



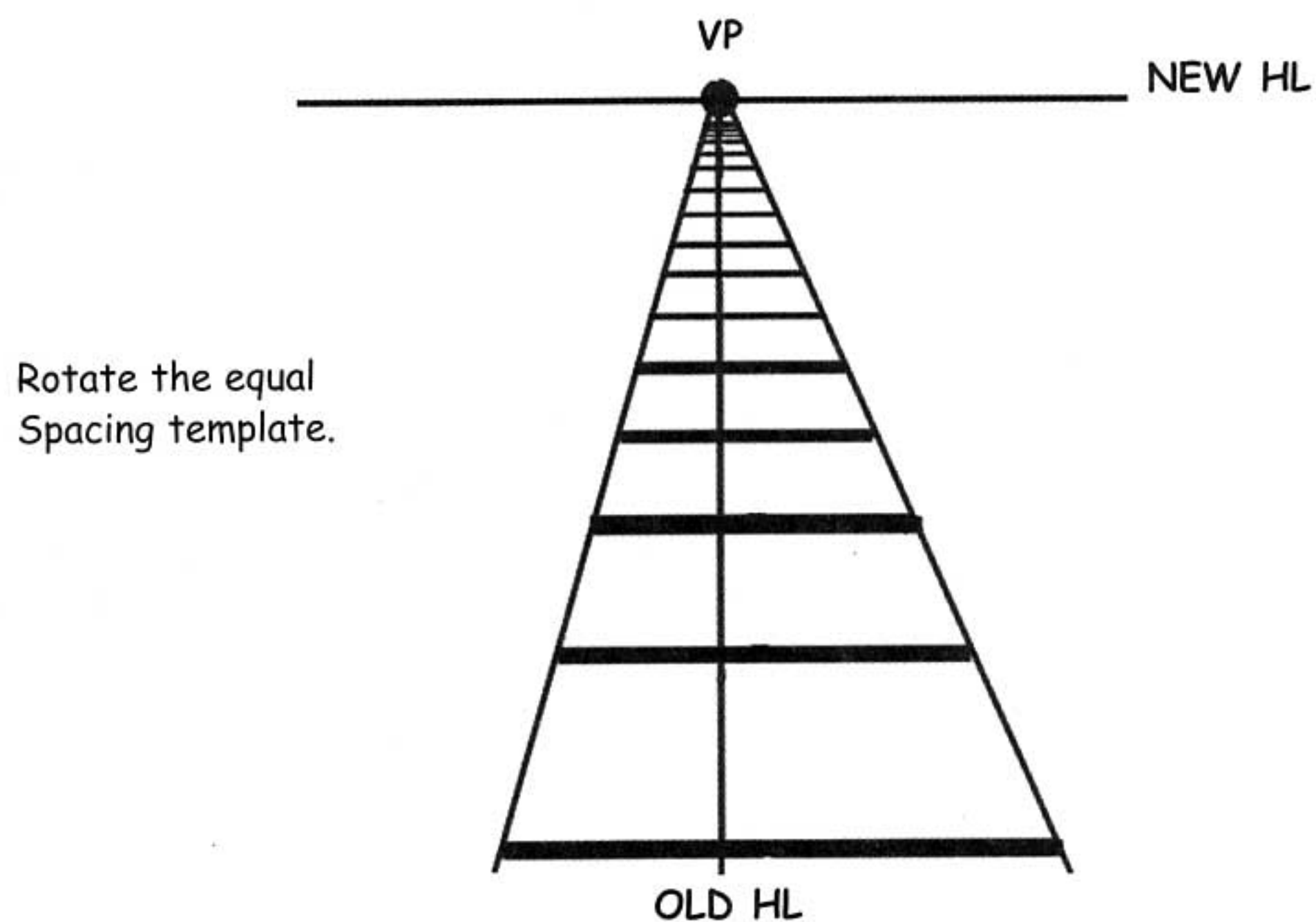
We can now create a new stick, (2), from the bottom point that rises up, parallel to the other two, until it reaches the top perspective guide line.



Repeat this using the second stick as the starting point for the line and continue until the desired amount of sticks are drawn.



Try this. Turn this example sideways to create a foundation for railroad tracks. This method of finding exact distances can be used for many applications including windows, chairs and rows of anything.

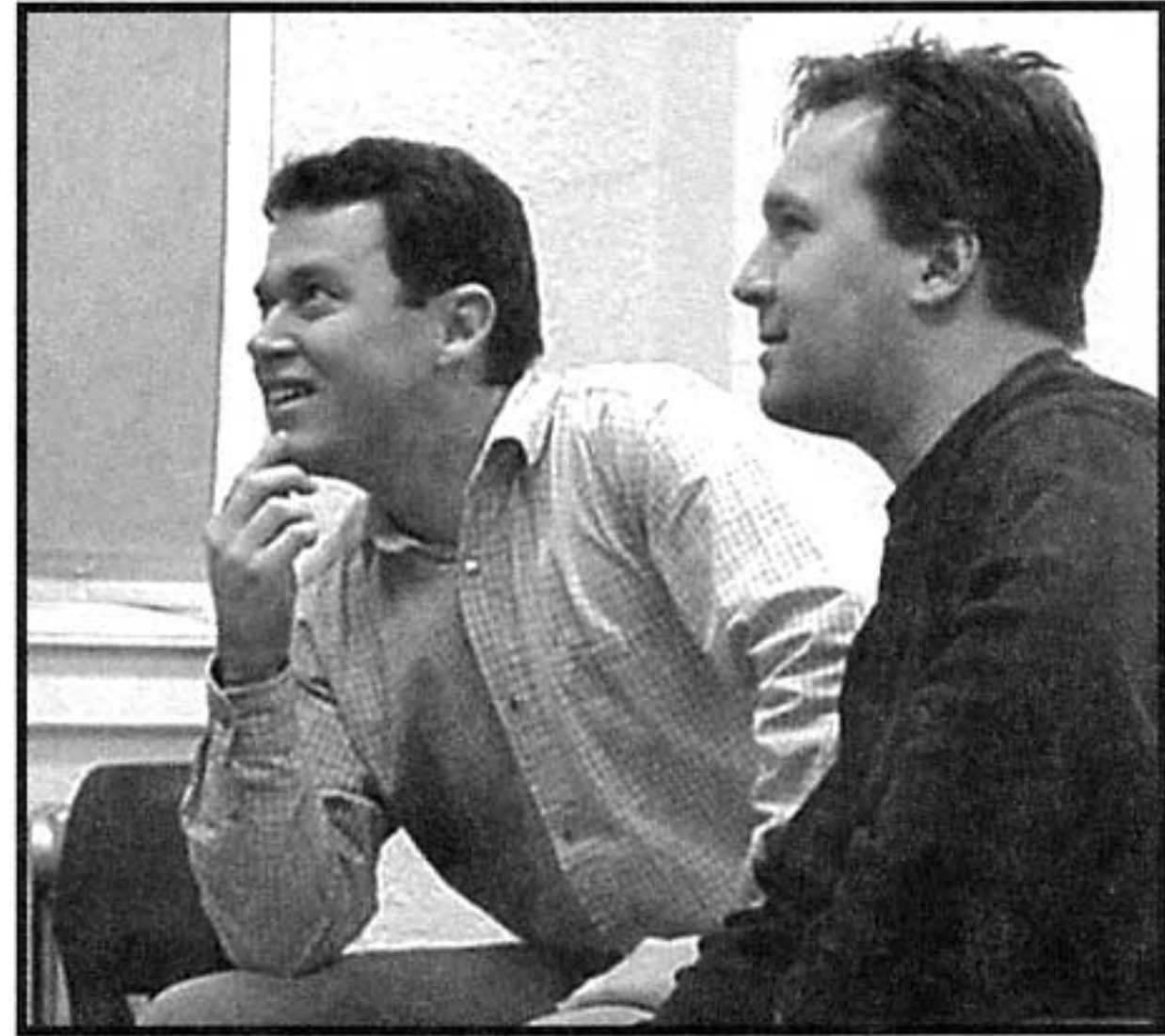




## FORM & STRUCTURE

I once did a team teaching session with a fellow animator, instructor and friend of mine, Rick Knowles, to a large group of non-animation college instructors about form and structure.

Our obstacle was to explain to the group what form and structure were and why they were necessary in animation. For us, this knowledge is second nature and it took some time to agree on the easiest way to describe Form and Structure. We came up with this solution.



Myself (on left) and Rick Knowles (on right) reviewing year two student animation material. February 2002.

Every object that exists in space has form. Everything from bugs to buildings, mountains to motorbikes, ocean liners to apples, has form.

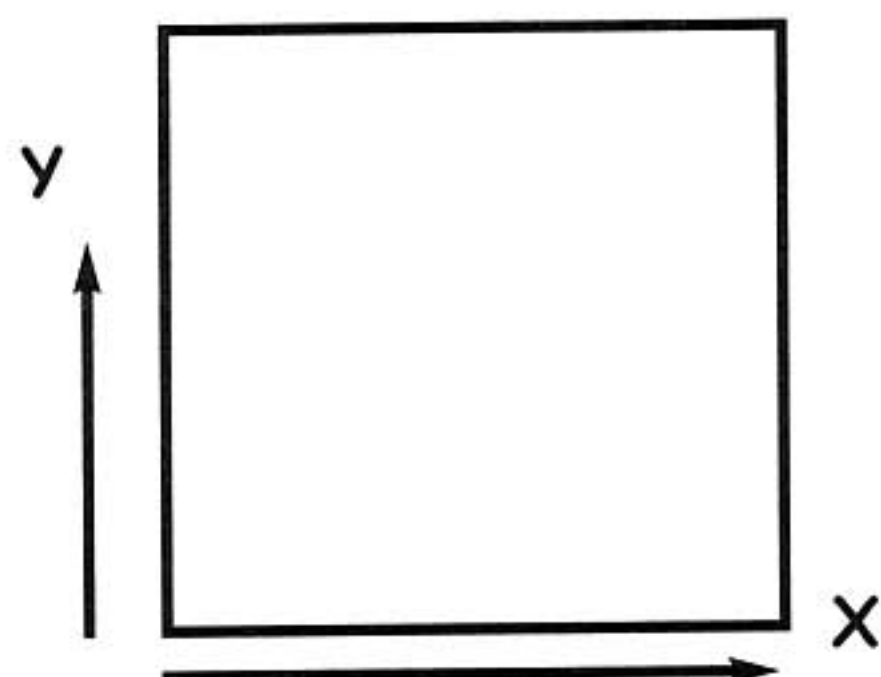
Form is something that we can touch and feel. Instinctively we know that in order to pick up an object, such as a ball, we look at it first and perceive that the ball is round. Our brain confirms what we see by comparison to experience and now belief is introduced that our hand can wrap around this form.

Before we touch the ball we also visually sense that it has mass (bulk) and substance. As we grab onto the ball we confirm this knowledge. This bulk and substance is known as structure.

In order to draw any object that has the illusion of real form on paper, a sense of depth must be added to the object's appearance. Since the piece of paper is flat and two-dimensional, the artist must understand what the internal structure is that makes up that object and apply perspective to create believable three-dimensional forms.

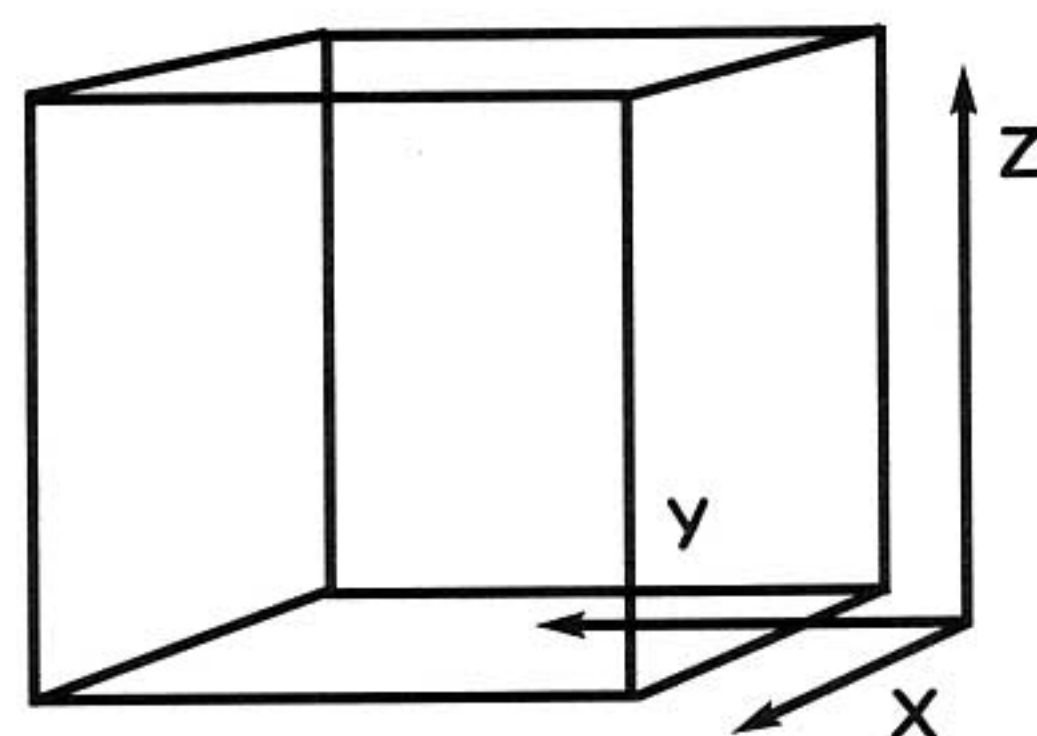


If we physically build a box, we must know the length of the side, the width of the base and the height of the box to construct it. When we draw a box we can easily draw the width and length to create a flat square.



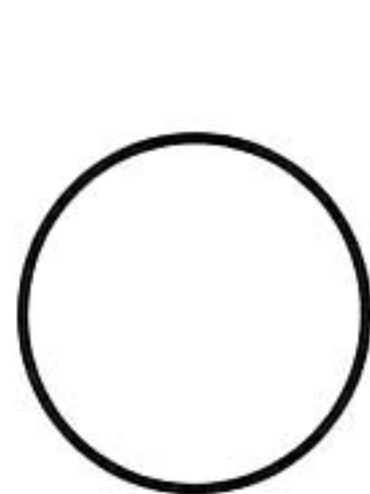
A square has length and width.  
Two dimensions.

By adding perspective to the square we create the third dimension, depth, and the illusion of form is created. This how a square becomes a cube and a circle becomes a sphere.

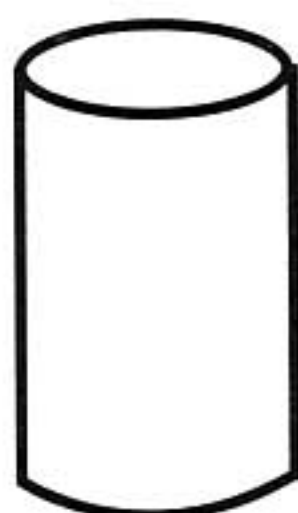


A cube has length, width and height.  
Three dimensions.

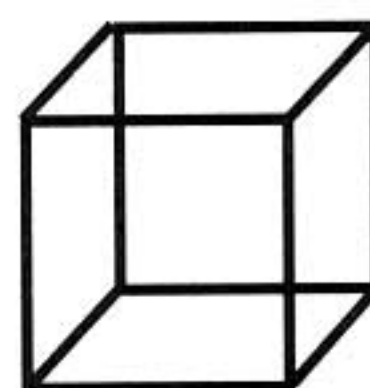
A novice artist attempting to draw an object such as a vehicle will often tend to draw the details of the car first as this is the first thing they see. An experienced artist looks through all the details to the objects basic building blocks or basic *forms* first. Once the structure of the drawing is in place, the artist draws the detail to completion. More on Form and Mass in the tonal chapter.



Sphere



Cylinder



Cube

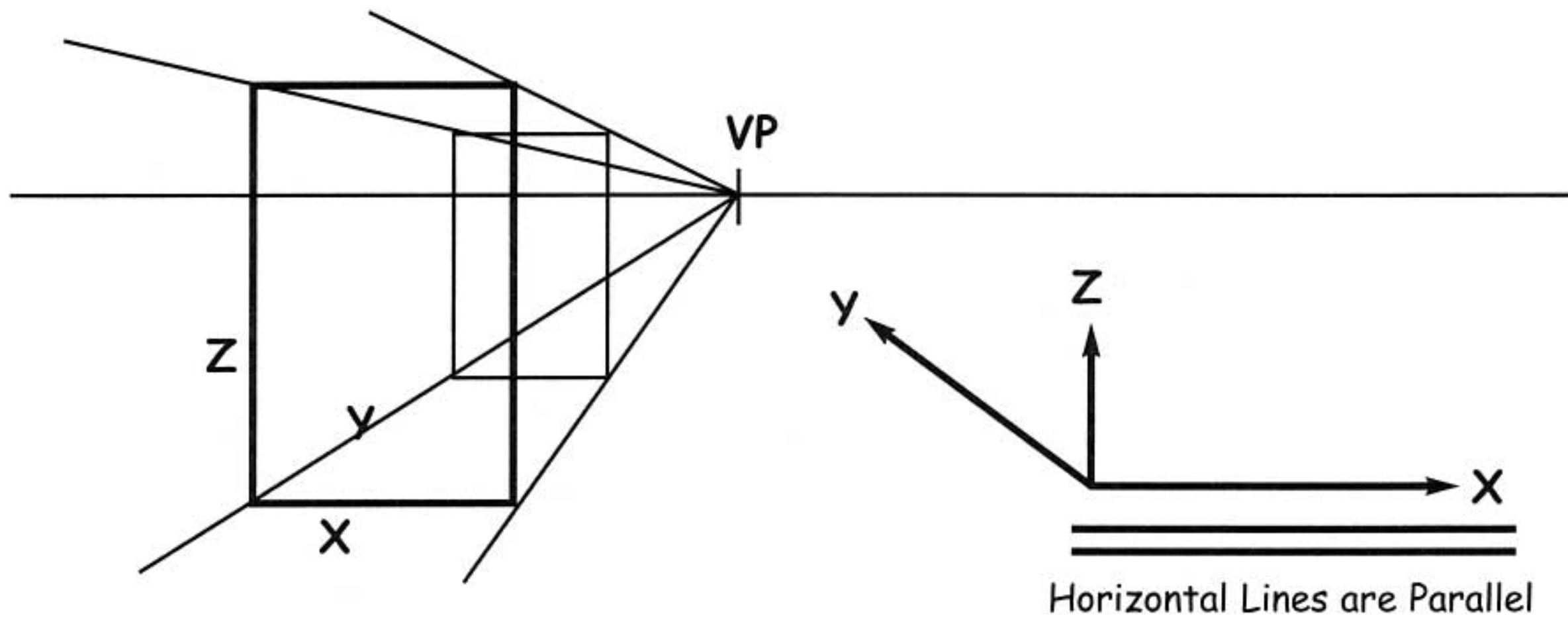


Cone

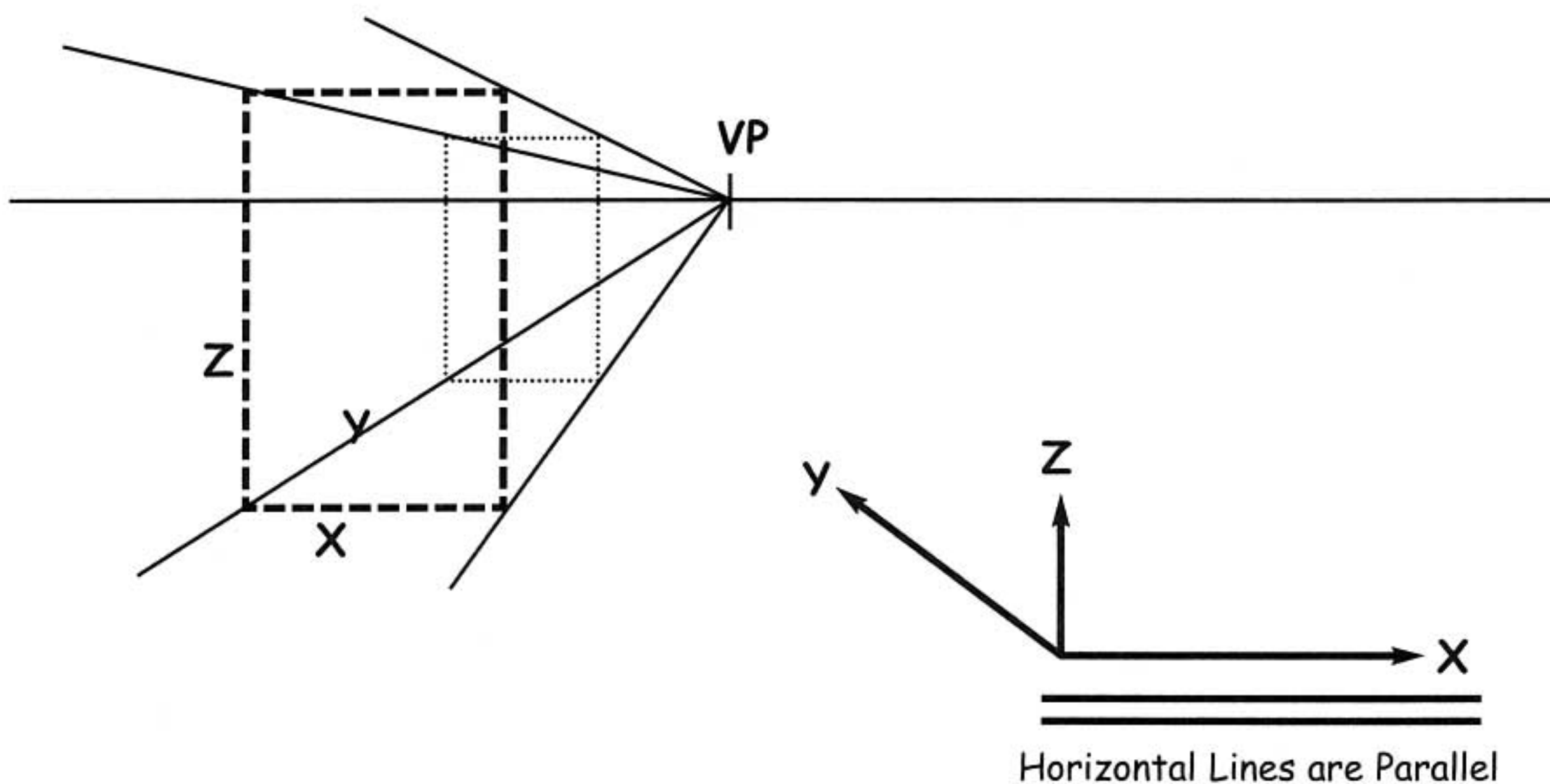
Above are examples of the Four Basic Forms.



**One Point (Parallel) Perspective:** Combining most of the mentioned terms, the one point parallel perspective drawing consists of a horizon line, one vanishing point placed on the horizon line and the understanding that all horizontal lines drawn will be parallel to each other. Here are a few examples.



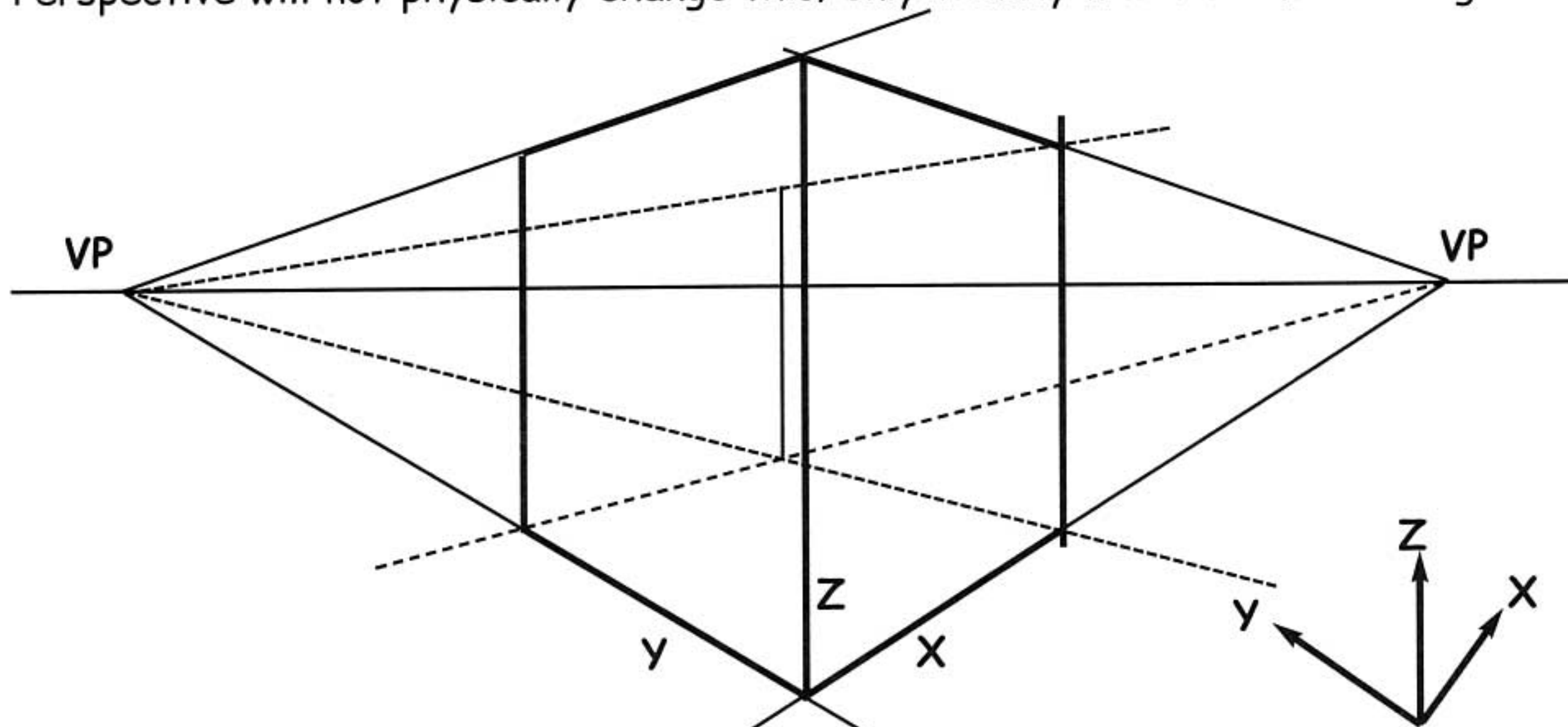
The X, Y, Z lines, shown above, are axis lines. Note that the x-axis line is parallel to the horizon line. The z-axis is at a 90-degree angle to the x-axis line.



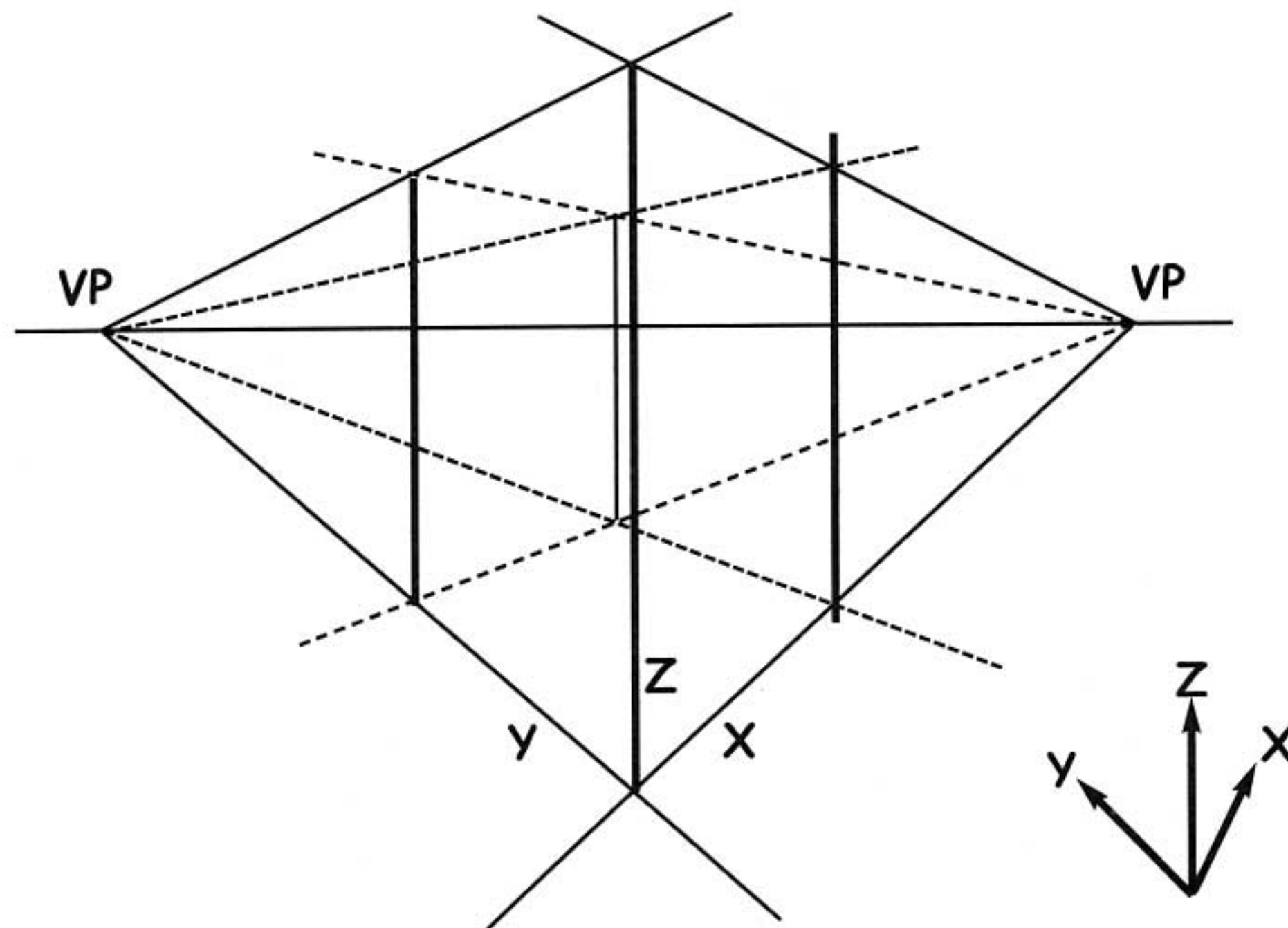
The y-axis lines all converge at a single vanishing point on the horizon line. This arrangement of axis **ONLY** works for one point perspective.



**Two Point (Angular) Perspective:** The two-point perspective drawing consists of two vanishing points that are both situated on a horizon line. The further apart these vanishing points are on the horizon line, the more relaxed or realistic the perspective will visually seem. In contrast, the closer that one VP is to another VP on the horizon line, the more squashed or forced the perspective will become. Understand that a cube is created of parallel lines for its height, width and length. Perspective will not physically change this; only visually will it seem to change.

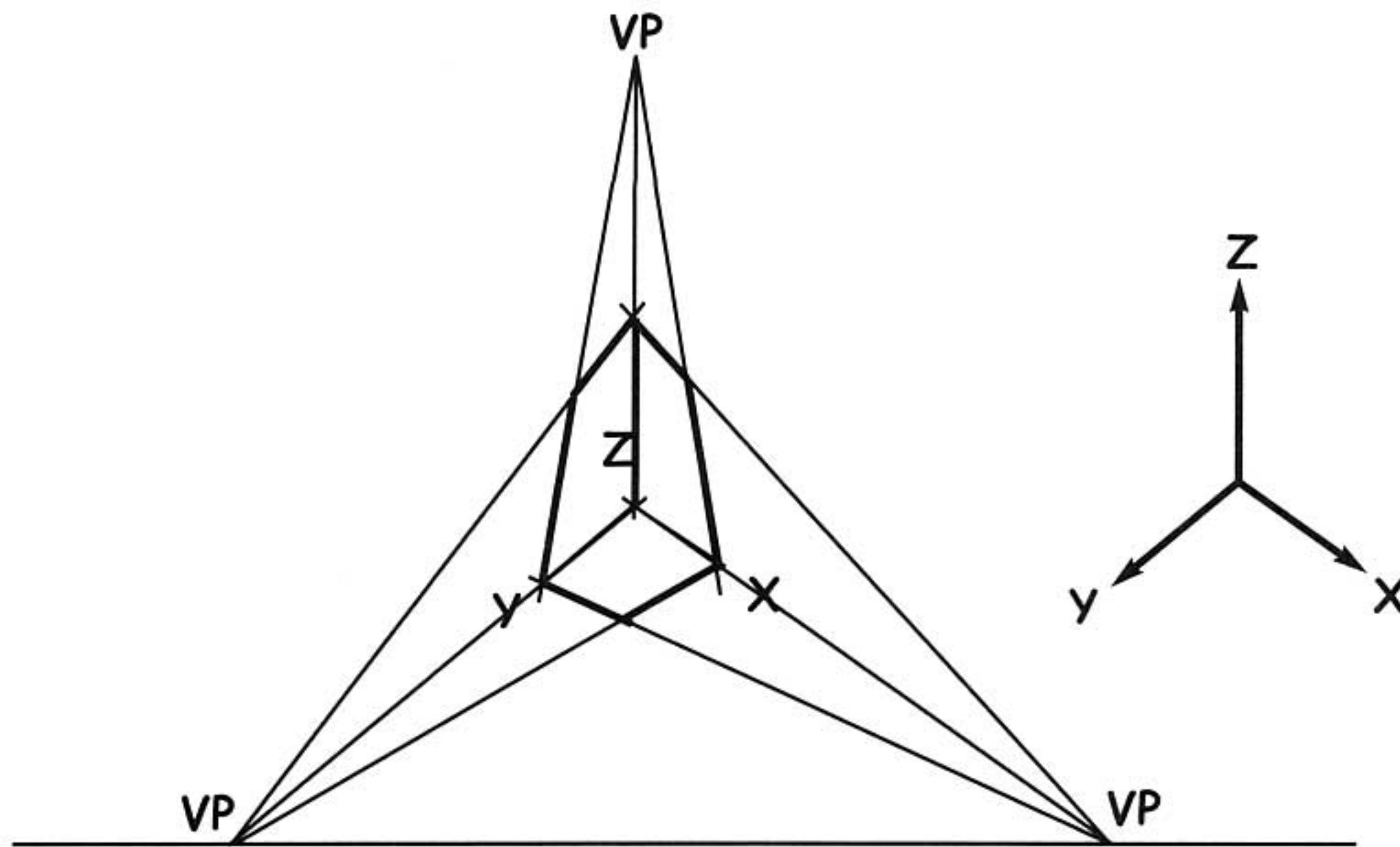


As seen above, the two-point perspective drawing has the y-axis lines converging to one vanishing point and all the x-axis lines converging to the other. The below example demonstrates the forced and distorted creation of a cube when the vanishing points are placed closer together.

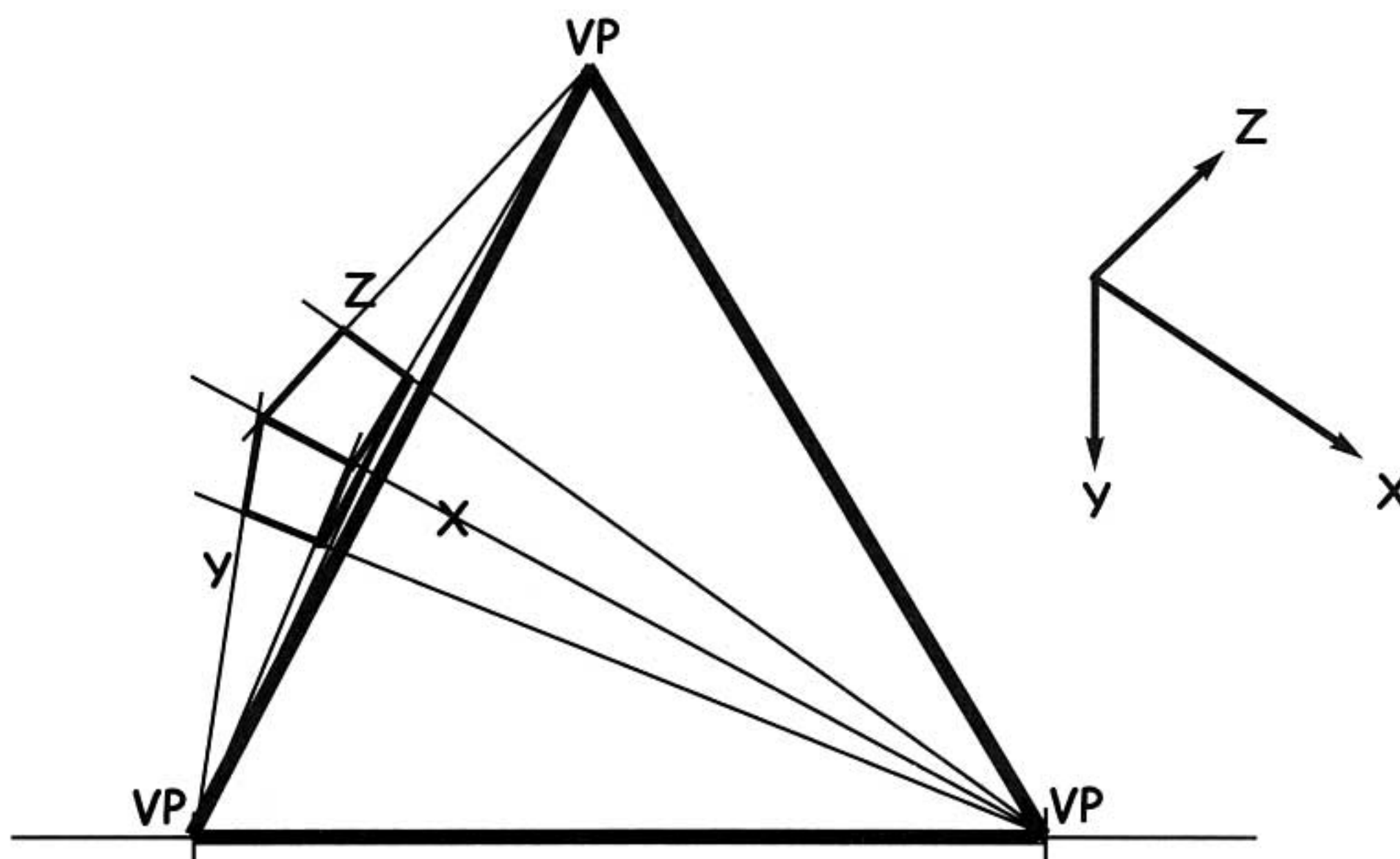




**Three Point (Oblique) Perspective:** The three-point perspective drawing consists of two vanishing points that are both situated on a horizon line while a third point is introduced far above or below the horizon line. An example of where this would be utilized is the view as you look up at large buildings, or look down from the fortieth floor balcony window to see the street below.



Be patient when drawing objects in three point perspective. Understand that the third vanishing point is located off the horizon line and now becomes the z-axis. All lines on the z-axis converge towards this vanishing point.

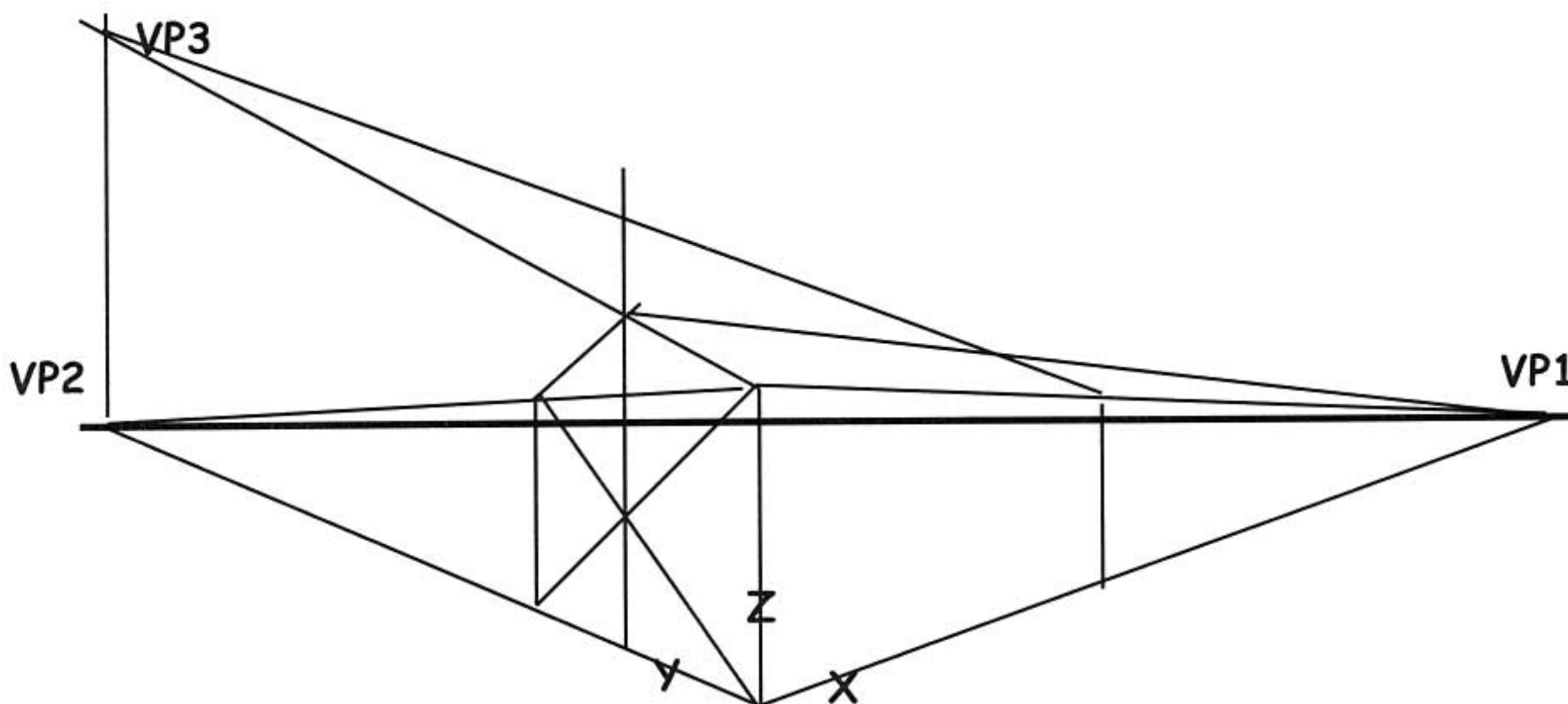


Beware of forced or distorted products that occur when drawing an object outside of the vanishing point triangle. Plan your design well!



**Incline Plane:** Similar to three point perspective, incline planes are areas which slant to or away from the main perspective grid by utilizing a third vanishing point directly above one main VP.

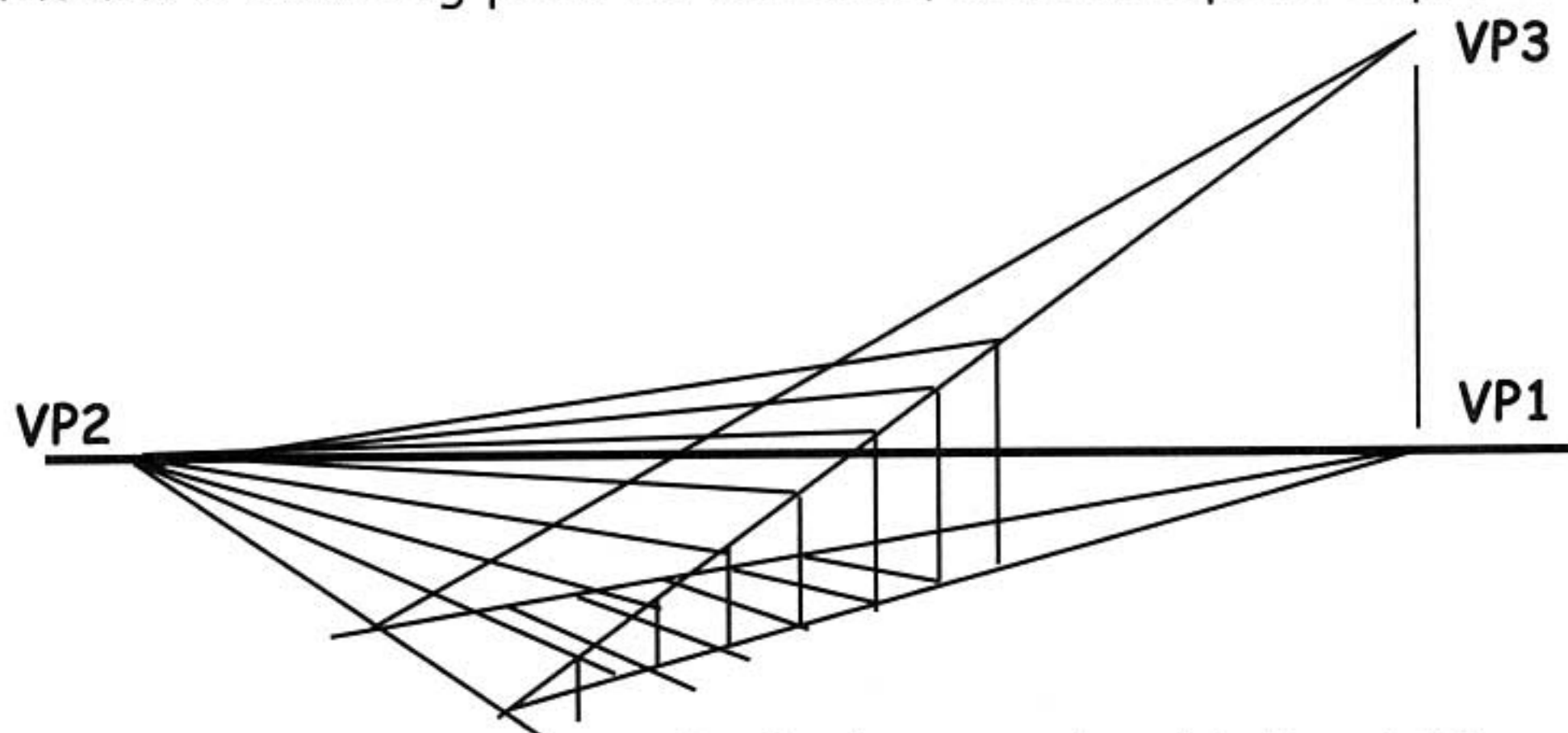
The name varies, but the reason behind incline planes remains the same. Incline planes are used to develop believable steps, stairs and roads to name a few items.



Using two-point perspective and a horizon line, a box was created to serve as the base of a house. As the example illustrates, the box or cube, extends over the horizon line.

To add a centred roof to this house, we need to find the middle of the cube wall by drawing an "X" from opposite corners then draw a vertical line up through centre. This centre line will serve as the height of our roof.

To create the above incline plane, a third vanishing point was required. The third VP was placed directly above the VP2 (as seen above). By connecting the lines from the third vanishing point to the cube, an incline plane is produced.

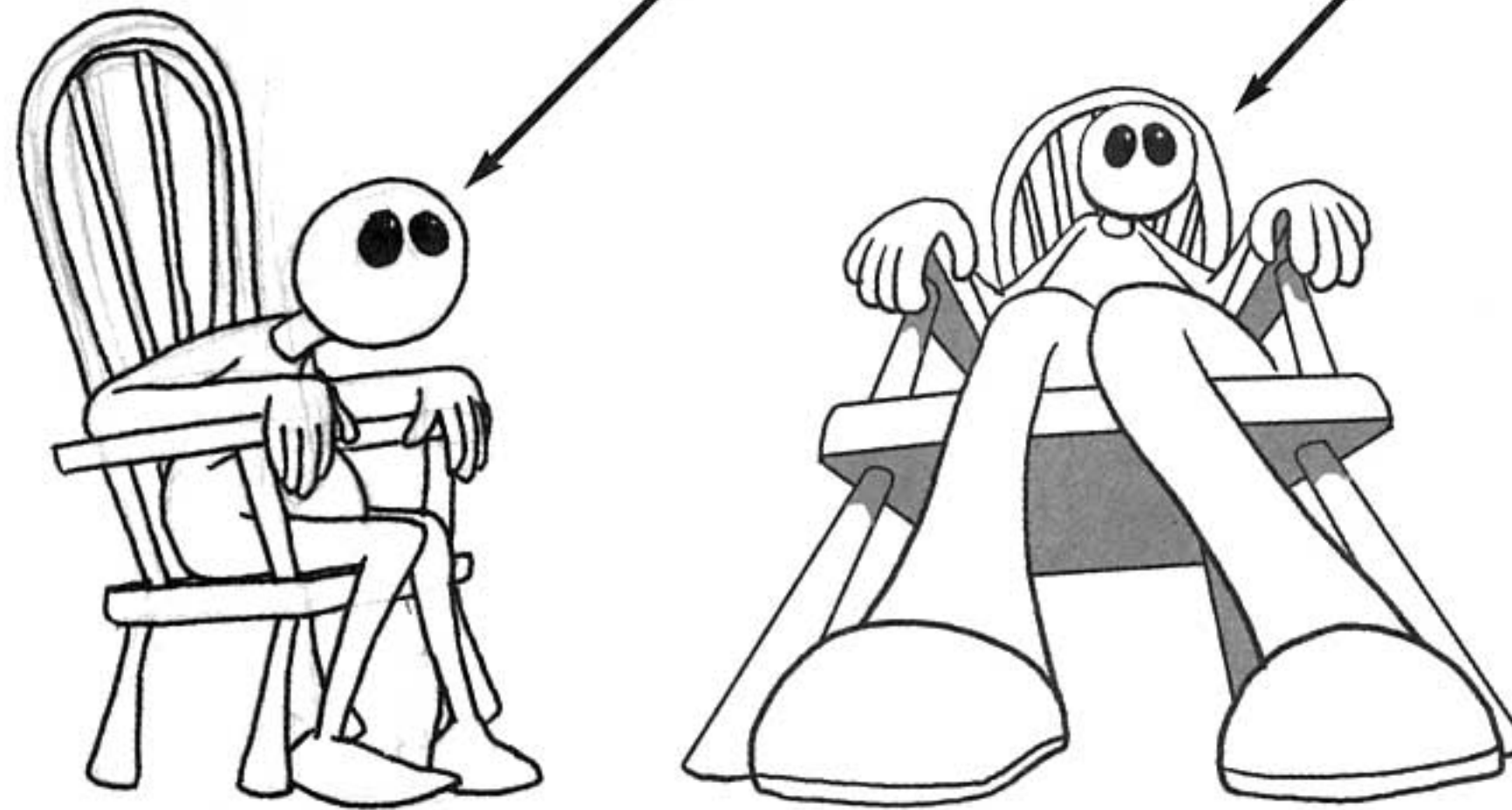


As this diagram demonstrates, both the use of a third vanishing point and application of the equal spacing knowledge can be used to create hills, man-made ramps and stairs. The rest of the line drawing will determine what it becomes.

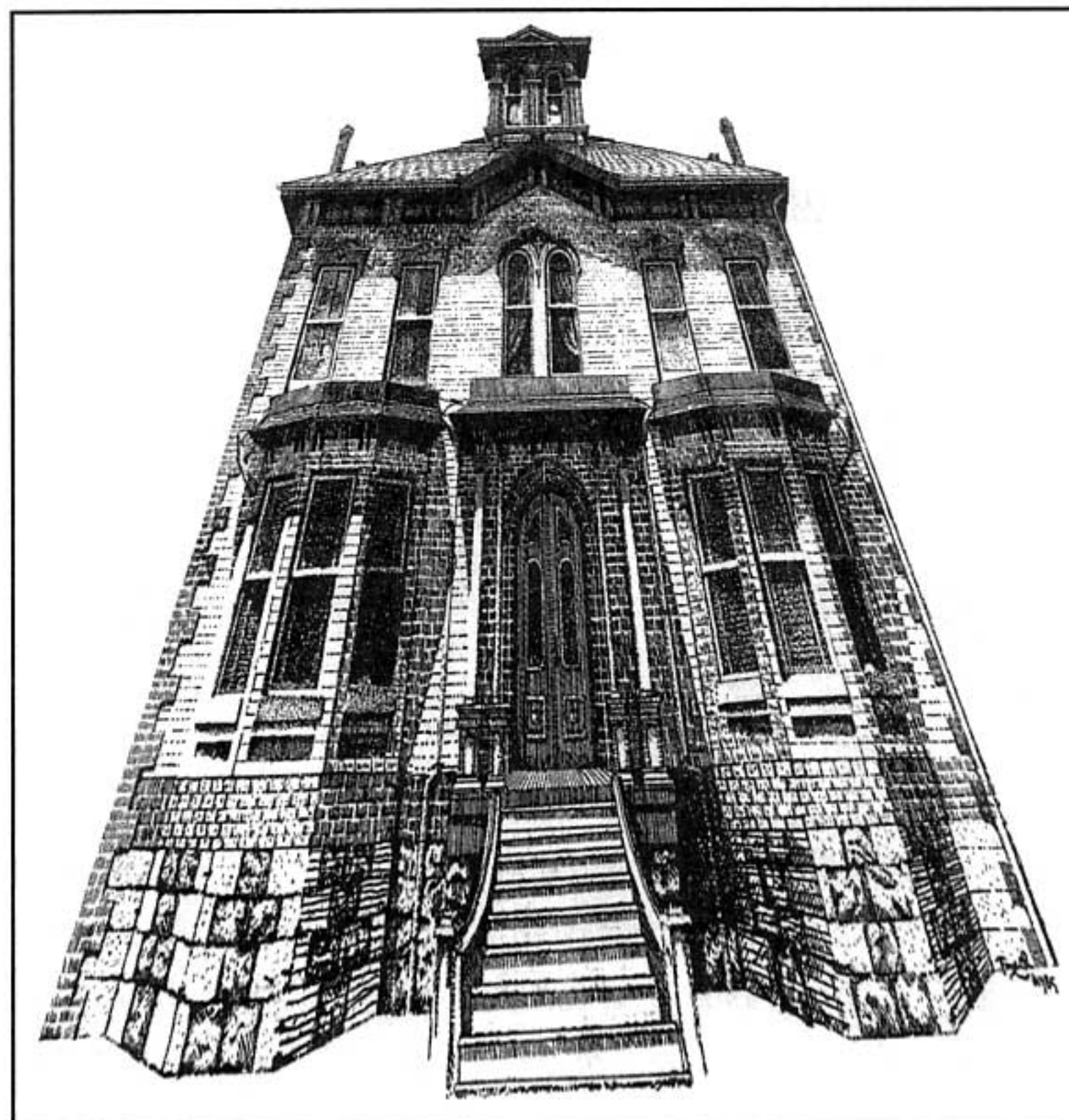
**Foreshortening:** Foreshortening is taking an object and placing it in two or more point perspective while bringing a part of the object close to the viewer's eye.

An example would be a person sitting in a chair. From a normal standing position you perceive the person to be normal looking. If you were to lay on the floor with your head close to the feet of the same person in a chair and look up, what you will see is a distorted view of the person. The size of the person has not changed but your point of view sees the foot being out of proportion compared to the rest of the body.

Here are two quick sketches of a regular view and a foreshortened view.



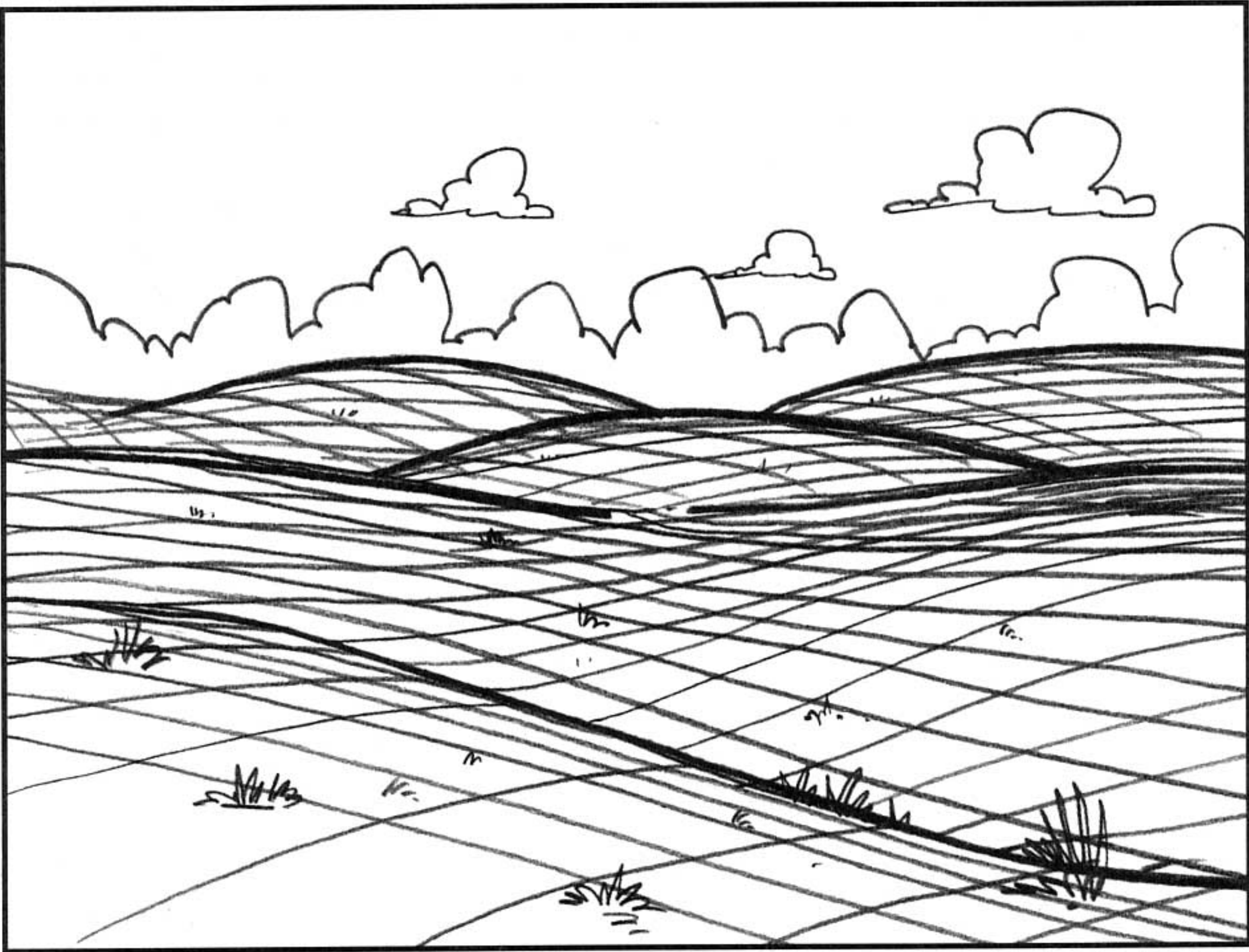
The example below is of a house. By adding foreshortening to the drawing an atmosphere of suspense, horror or even fear is created. Try drawing other household items with foreshortening in your sketchbook!





**Ground Line:** The ground line is not always the same as the horizon line. There are conflicting definitions of what this actually is, or is not, but it tends to be described as the flow or lay of the distant environment edge.

**Perspective Grid or Ground Plane:** With the vanishing points established on the horizon line, lines can be drawn on the ground back to these points to show the contours of the environment. In animation this is a very crucial stage of background and character layout set up to ensure the characters stay solidly on the ground.



When drawn correctly, this ground plane helps to define form. A hill is shown as a hill and not a flat surface.

**Does this mean that the drawing now has structure?**

## **EXERCISES:** CHAPTER 1 INTRO TO PERSPECTIVE

Try these exercises for creating perspective drawings. Below are four exercises based on the material in this chapter. Avoid small drawings at this stage of learning. Use and fill an 8 1/2" by 11" sheet of paper. Once you have completed these exercises, do them again. Practice often.

1. Create a drawing that has a horizon line at a low angle. Using one point perspective with the vanishing point placed off centred on the horizon line, draw a city street. Only include buildings and the street below.
2. Using a horizon line at a mid-angle create a country road drawing that has a row of evenly spaced hydro poles just off to the left hand side. Allow both the road and hydro pole to converge at one vanishing point on the horizonline.
3. With a high horizon line create five two-point boxes anywhere in the drawing. Try to vary where the boxes are positioned in the drawing.
4. Create a drawing that has a normal angle horizon line and uses two-point perspective. Tape two pieces of paper together lengthwise. Draw the horizon line across both pages and place a VP at each end of the line.

**ONLY THE PAPER ON THE RIGHT SIDE WILL BE  
DRAWN ON AFTER THIS POINT.**

5. In the centre of the right hand side paper, create a three-inch box using both VP's. Build on to this box as if it were a set of wooden toy blocks using a minimum of ten different sized two-point boxes to create an original composition.

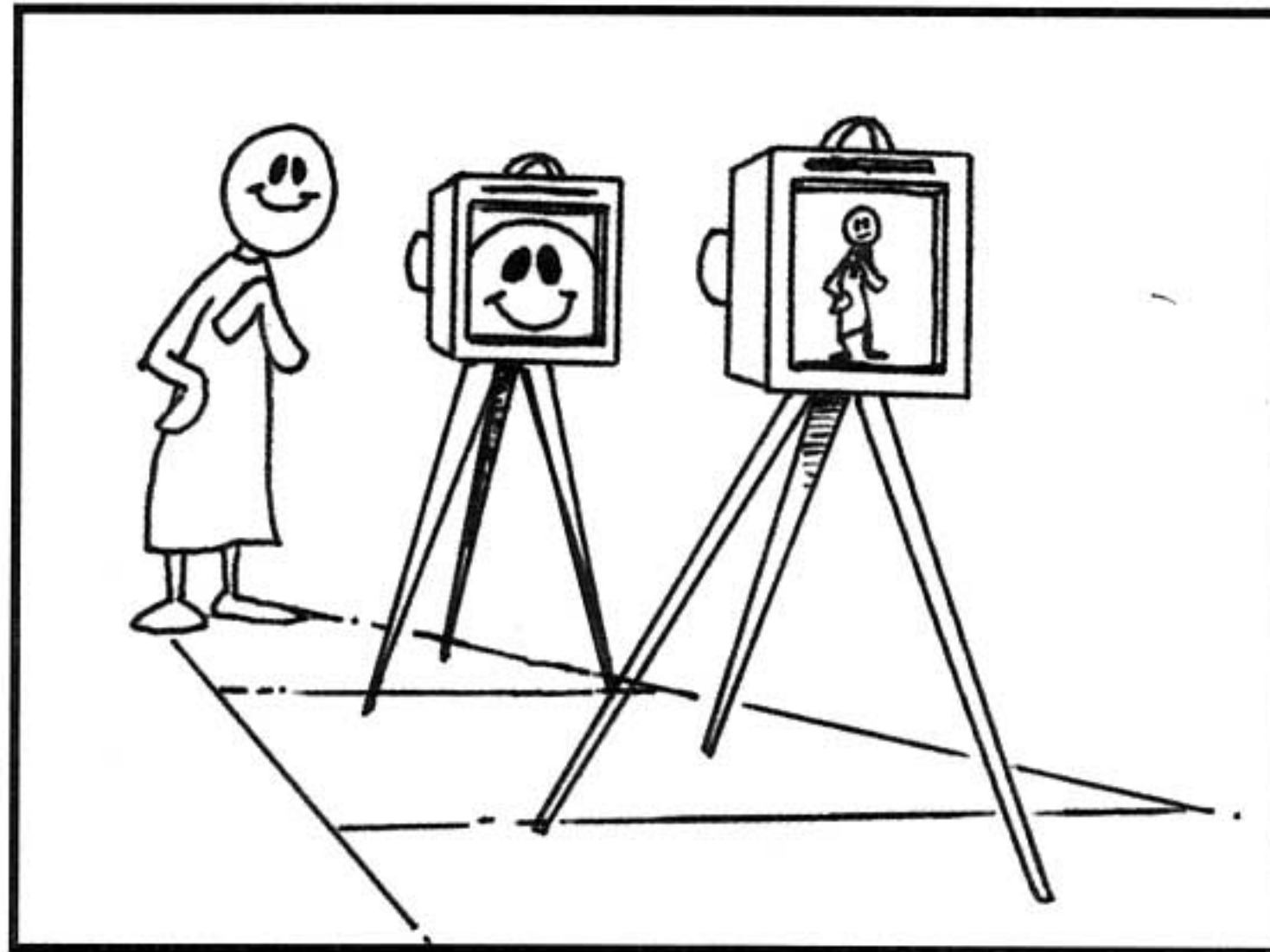


## TYPES OF CAMERA SHOTS AND ANGLES

Establishing  
Long  
Wide  
Mid (Hollywood)  
Medium Close Up  
Close Up  
Extreme Close Up  
Point of View  
Pan  
Crane  
Cutaway  
Truck  
Profile  
Three Quarter  
Frontal  
Up Down

## TYPES OF CAMERA SHOTS

One of the foundations of both live action film and of animated film is defined types of camera shots. **What is a camera shot?** A camera shot is where a camera is pointed at a certain distance and angle away from the object or person to be filmed. The closer the camera gets to the person the less of the whole is seen. The opposite of this occurs when the camera is moved away from the person or object to reveal not only more of the object but more of the surrounding area.



The camera viewfinder example above helps to define a camera shot.

**What is the purpose of different camera shots?** To retain the audience's interest in a story, the camera changes the distance and the angle of the characters being filmed. This is a camera shot. By adjusting the placement of elements and characters in the camera shot, we can direct the focus of the audience at any given moment of the film.

**Who decides what shot is necessary to the story?** The director has much input as to what shot should be used and where, but the person that designs and draws the storyboard portion of the animated show defines the majority of camera shots.

In this chapter we explain how the different camera shots affect the atmosphere and purpose of the scene being created.

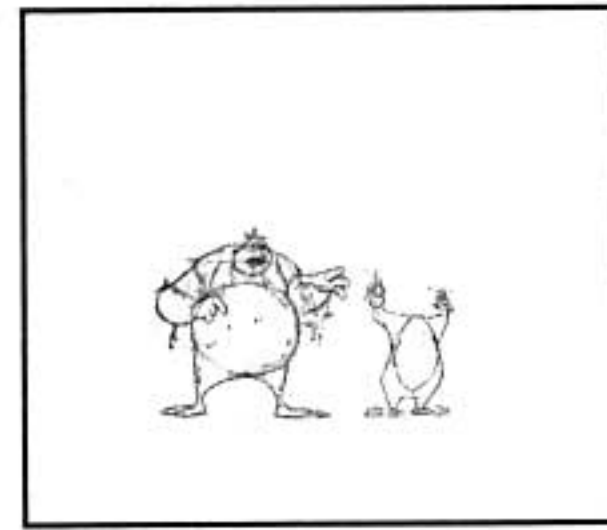
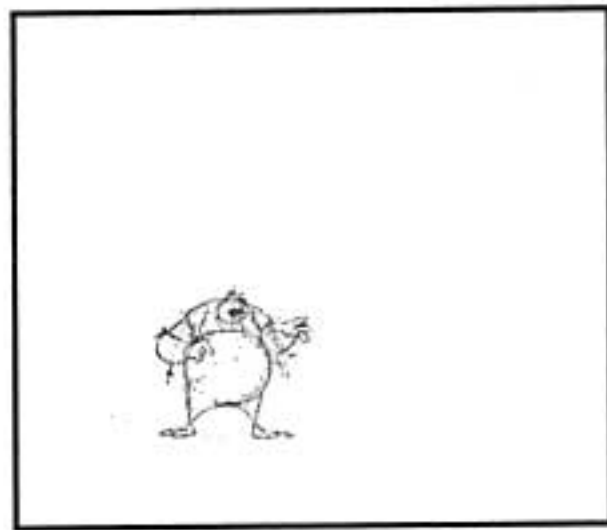
**NOTE:** The role of the layout artist will start only when the storyboard artwork is complete. Both roles are defined in later chapters.



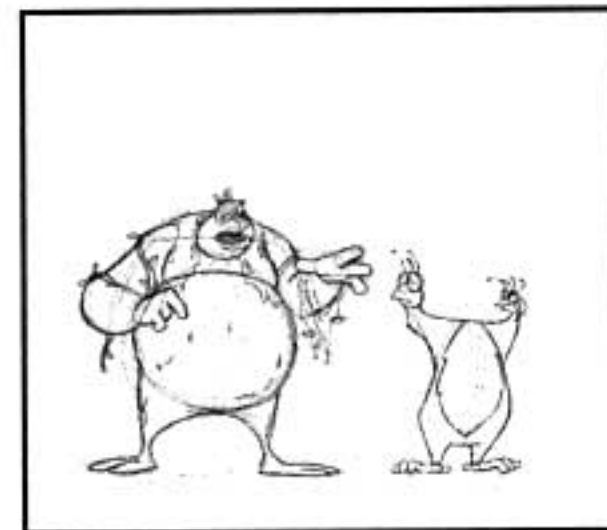
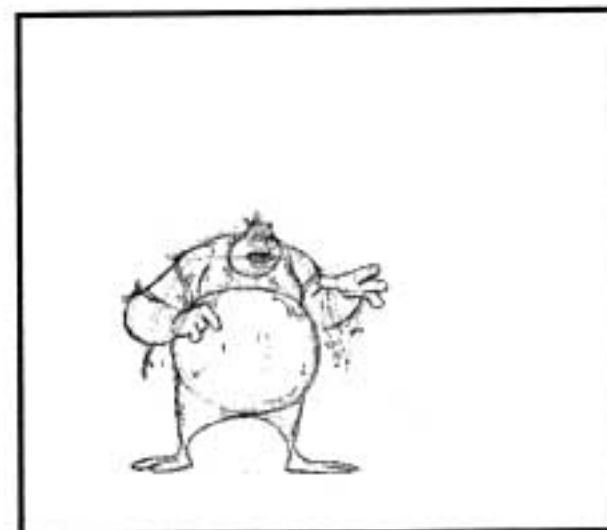
The following examples explain the various types of camera shots and the names most readily used in both live action and animation industries. For clarity I have found when teaching this portion of animation to show both a **SINGLE** and a **GROUP** version of the camera shots.

Portions of this important section will be repeated in a later chapter of **Camera Moves: Graticule, Field Guide and Labelling**. Please refer back to these sections constantly.

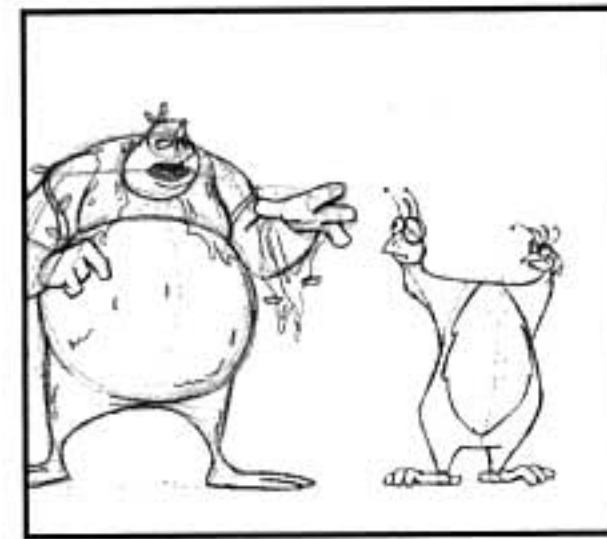
The **ESTABLISHING SHOT (ES)** gives details about where the scene takes place, what details are to be viewed and the overall atmosphere of the scene. This is also called the Extreme Long Shot. (See also Panning Shot)



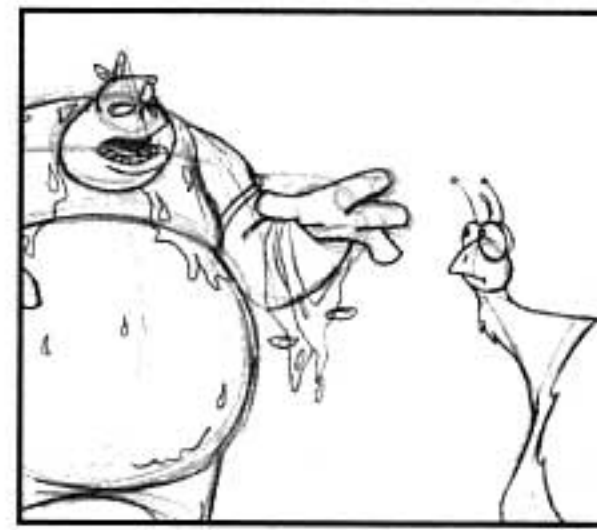
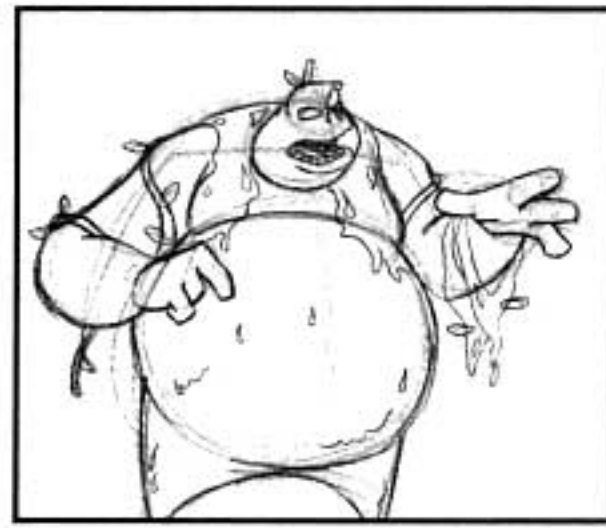
The **LONG SHOT (LS)** is closer to the subject than the establishing shot. Primarily used for broad action. Attention to the atmosphere and environment is similar to The Establishing Shot.



The **WIDE SHOT (WS)** is used for broad action, with or without dialogue. A typical use for this type of shot is for the entrance and exit of characters

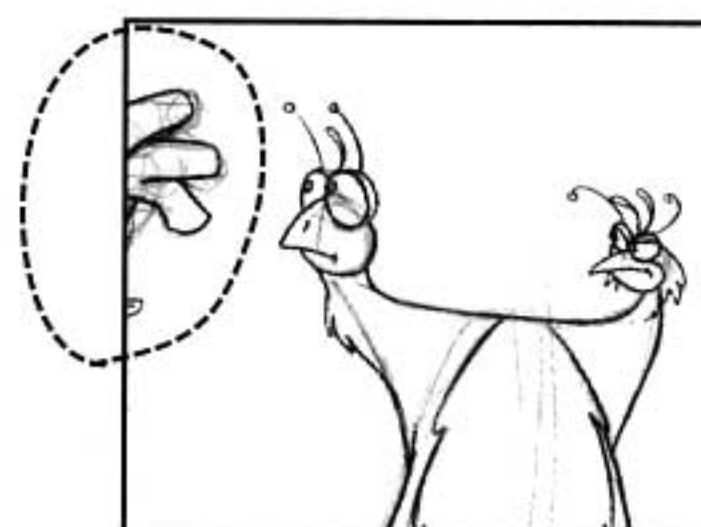


The **MEDIUM SHOT (MS)** as a general rule, is shown from the knee upward of the characters in the scene. It is used for moderate action and general dialogue.



The Medium Shot composition is too tight for two characters. I suggest not using any smaller shots than this.

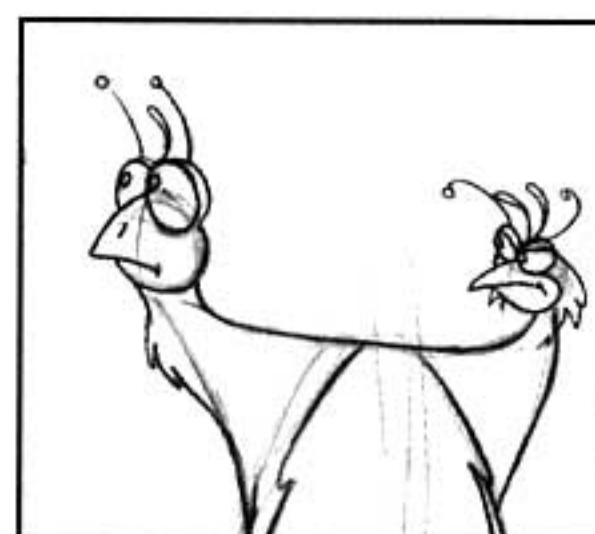
The **HOLLYWOOD SHOT** or **MEDIUM CLOSE UP SHOT (MCU)**, has several other names and definitions of where this shot starts. Some define this shot as knees upward while others as waist upward. For variance from the Medium Shot I will illustrate from the waist upward.



This hand is not necessary to the shot (dotted line).

Remove it from the composition.

The **CLOSE UP SHOT (CU)** tends to show mid chest and upward of a character, or a hand grabbing a tool on a table; something that has meaning to the scene. When dialogue is used in a close up shot, it is of importance to the scene. The viewing audience is more intimate with the character.





The **EXTREME CLOSE UP SHOT (ECU)** is used to create tension or a dramatic effect. It can show detail that must be noticed in a story such as an eyeball or the words on a pirate's map. This shot is also used to set up a character point of view shot.



An alternate ECU

**POINT OF VIEW SHOT (POV)**, also known as the over the shoulder shot and external angles, the camera angle is designed so the audience can experience the scene through a character's eye. It is very useful to break up the monotony of single character shots by showing the audience where these characters are in relationship to each other in their environment.

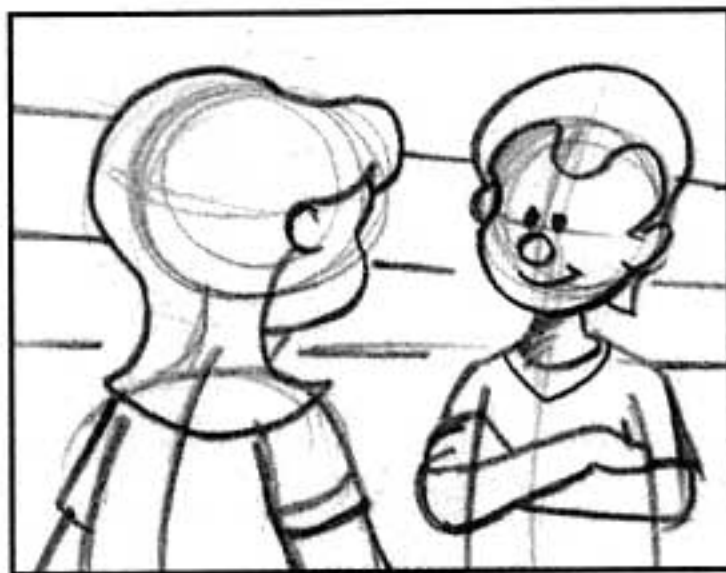


Fig. 1

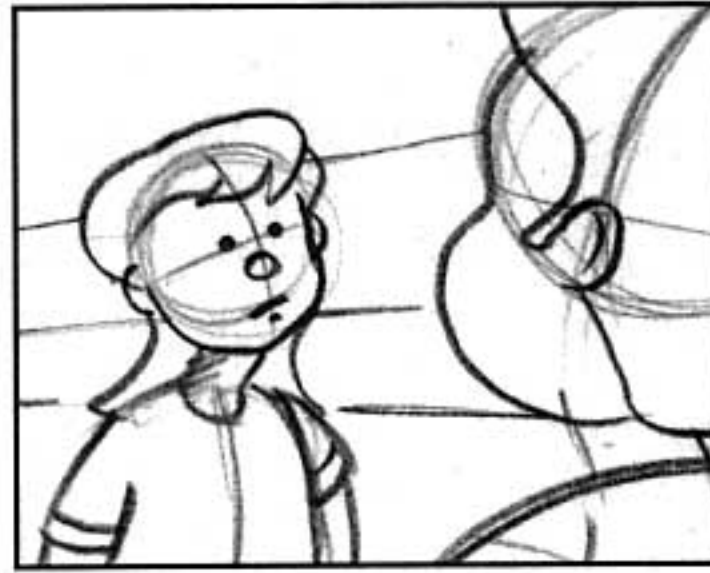


Fig. 2



Fig. 3

There are problems that can arise from this type of shot! If the character, as it is shown in Figure 3 above, is facing the audience we can NOT cut back to a single view on either of these characters.

## WHY?

The characters will appear to "POP" or morph into the other character. Character popping is a term associated with improper character staging and fielding of two adjacent scenes. The solution to the above example is to do one of three shots.

One method to prevent this popping of character would be to simply cut to a third part: introduce a new character to the scene. Make sure that the audience knows where the character is situated prior to attempting this shot.



Another method involves cutting to a full reversal of the two characters. Ensure that the position of the characters matches the position of the previous scene. Sometimes a scene utilizing these characters from earlier in the storyboard can be used again. This term is known as REUSE.



The third method involves backing out the camera to reveal more of the two characters in the scene. To make this new scene work, you must understand what the meaning or point is that this scene has to deliver.



Read more about staging and fielding in the following chapters.

**PANNING SHOT (PAN)** can be used many different ways including establishing shot, transition to another scene, or as a background only partially seen from the interior of a car. THE STAGE MOVES UNDER THE CAMERA. We only see a small portion from our point of view similar to looking out from the window of an airplane.

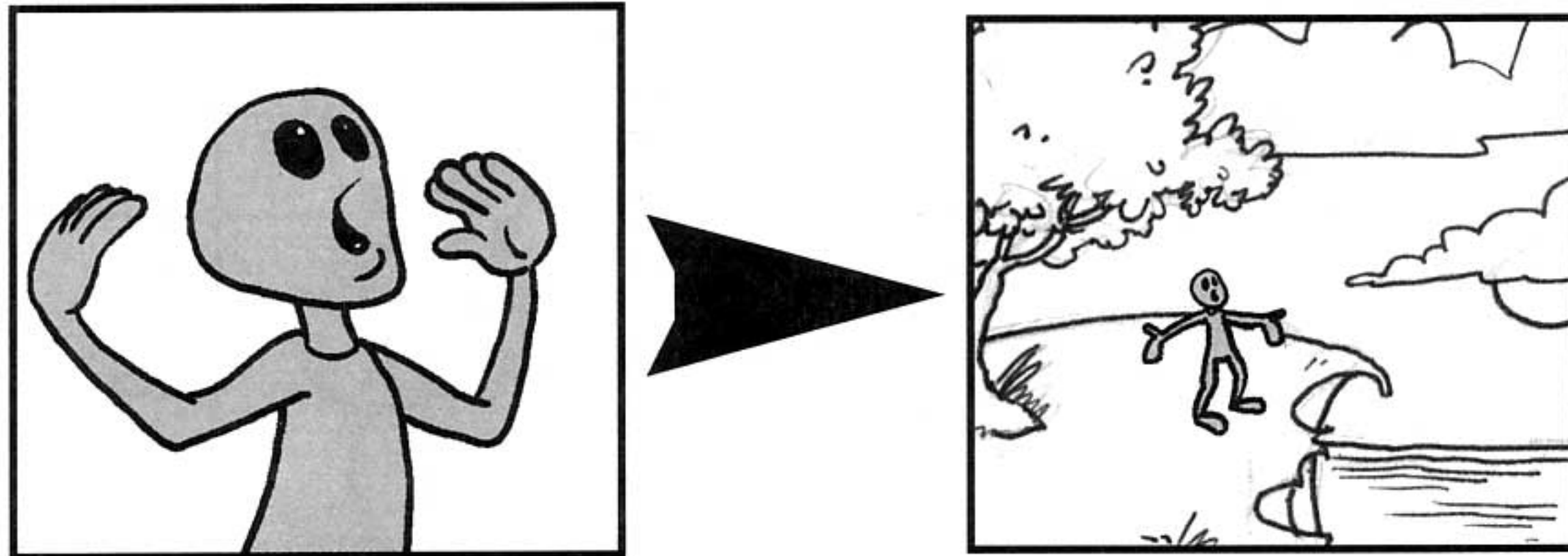




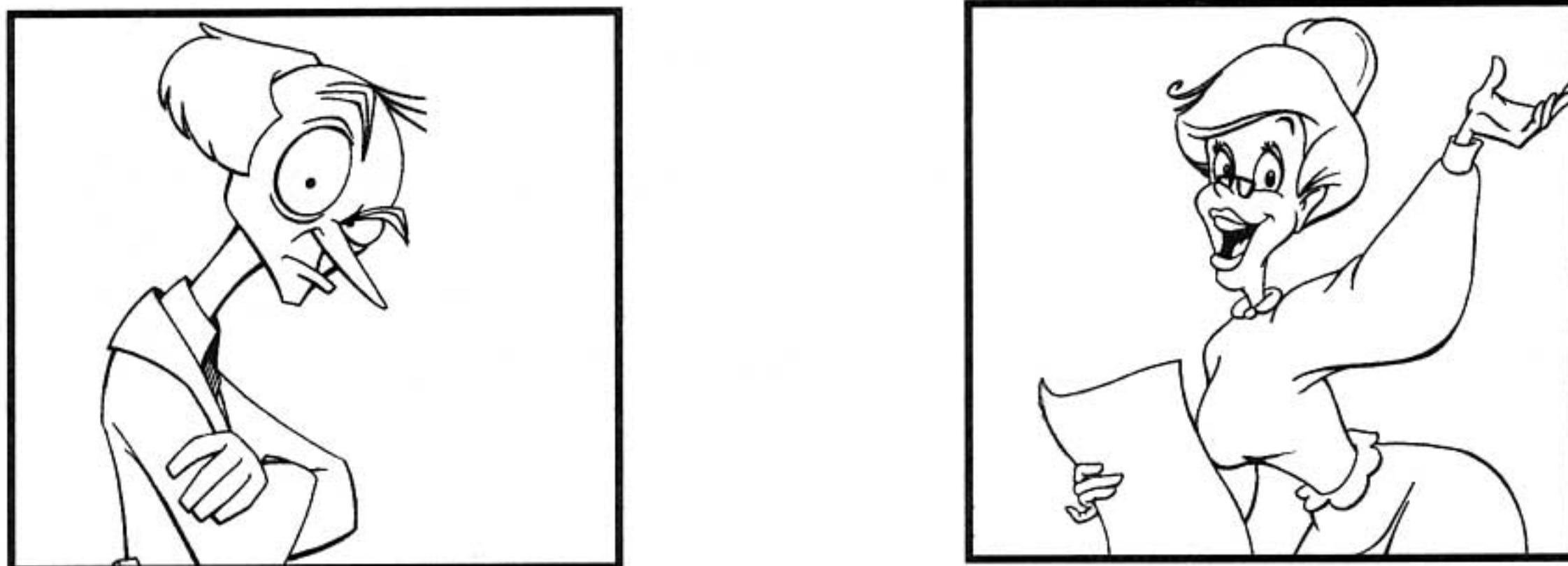
**CRANE SHOT** is used for a dramatic effect. The camera shifts around the character while the height or distance of the camera continually changes.

An example is looking at a character using a MS (Mid-shot). The camera starts on the character then moves up and away to reveal more of the surrounding stage and actor.

It is important to note that the camera does not stop, or CUT, at any point during this shot. It is one continual movement.



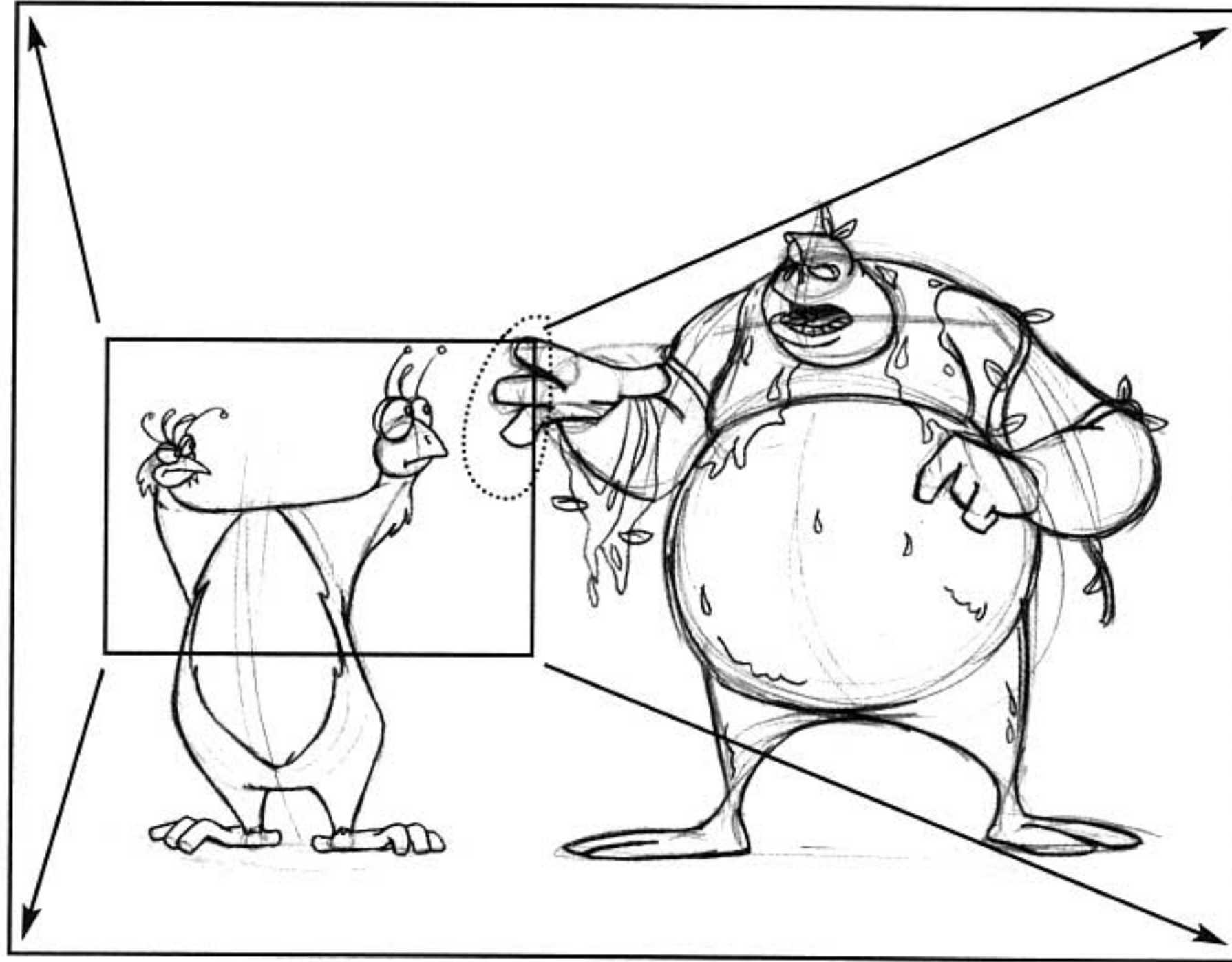
**CUTAWAY SHOT** is a term used in the industry to separate two different scenes that may or may not flow together with dialogue. Storyboard artists tend to use this shot when the scene calls for a reaction of a character. A new fielding of a scene is not always required.



The Cutaway shot uses a combination of any of the aforementioned shots such as MS to ECU or MCU to MS, to show a reaction of another character to another.

**TRUCKING SHOT (TRK)** is where one camera fielding is initially suggested then a second is introduced. Be it smaller or larger, the camera trucks (moves) closer into or away from objects in the same scene.

This can be used for a variety of reasons. Most trucking shots are used to introduce or conclude television animation shows.



In the example above we have two characters. By the direction of the arrows, we see that the camera is TRUCKING OUT to a larger field.

If this example was a cutaway shot that started with both characters in the field then cut to the smaller field with only one character, the creature on the right has its arm in the way of the other character. An advanced layout cheat would be to remove the arm by spacing the characters further apart. (See the dotted arm above)

Understanding the camera shots that are possible is the start of applying this knowledge to layout creation. Take your time and re-read this section over several times.

When we create an animation scene in layout, we are looking to convey the intent of the storyboard artist while maintaining interest in the viewing audience. Diversity is what initiates interest. The next section pushes this diversity with camera angles and direction.

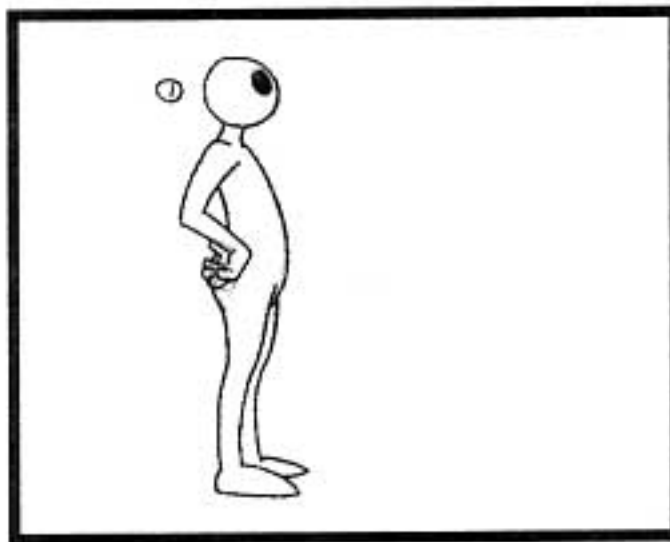


## CAMERA ANGLES:

With the general understanding of what the different camera shots are with one or multiple characters, the addition of camera direction can be introduced.

**What is the difference between camera shots and direction?** The camera shot is how the picture is to be framed on screen. Camera direction, or angle, is how and where the camera is pointed at the subject.

Previously we described the differences in camera shots. We will now add three basic camera directions to three different camera shots.



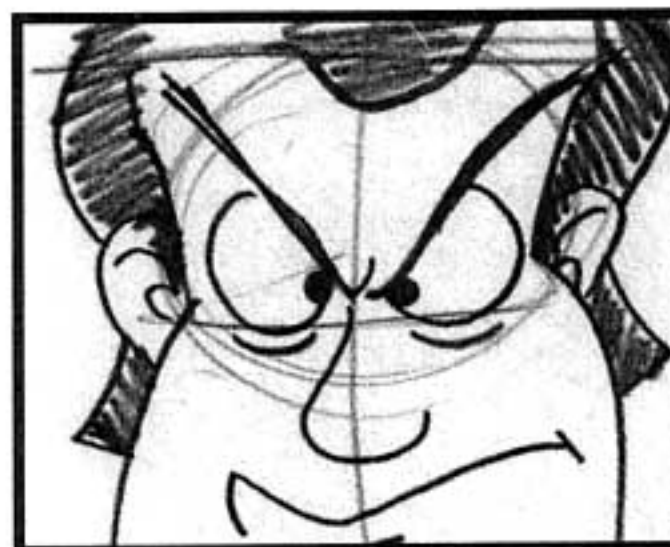
**WIDE SHOT / PROFILE:** This shot is used to see the whole character. The profile means that character is turned to its side.

There is very little tension in the scene and the body language can be clearly understood by the audience. This is very important to sell an action.



**MEDIUM SHOT / THREE QUARTER:** This medium shot has the character turned to three quarter (3/4) position.

There is more tension in this scene compared to the Wide / Profile. This is the most widely used of all the angles in animation mainly for its clear readability for dialogue. There is little to moderate action in this shot.



**EXTREME CLOSE UP SHOT / STRAIGHT FRONTAL:** This shot simply screams in your face, "Look at me!"

Only a small portion of the character can be seen such as part of the face. The movement is minor but the reaction and impact is very strong. The tension is at its maximum for this shot.



**EXTREME CLOSE UP SHOT / THREE QUARTER:**

Is a better alternative for storyboard continuity and prevention of crossing the axis line than the ECU / FRONTAL.

It gives the same dynamics and maintains eye direction from the previous scene.

By implementing one of these three camera angles, certain scenes still appear weak if they were placed into simply a straight on mid-shot or an establishing shot. **What if foreshortening and perspective were added to the scene? What effect will this have on the scene?** Below are a few examples to illustrate this.

The first example is that of a haunted castle. In Figure 1 the scene is a typical establishing shot. Figure 2 adds foreshortening and a slight three-point perspective twist to the artwork to create an upshot of the castle.



Fig. 1

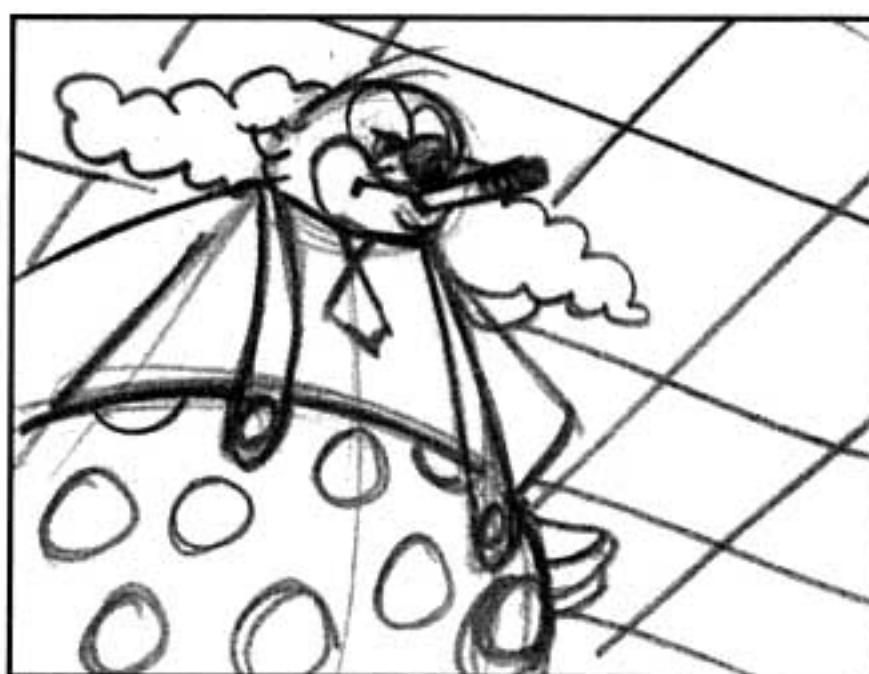


Fig. 2

As you can see Figure 2 is more interesting and powerful to the viewer. This is called an UP SHOT. A different effect can be achieved with what is called a DOWN SHOT.

These camera angles can also tell much about the personality of a character and their attitude. The dynamics of these shots are not limited to location setting, atmosphere and mood of a scene background.

#### UP SHOTS



Dominating or Threatening

#### DOWN SHOTS



Weak, vulnerable



## **EXERCISES:** CHAPTER 2 TYPES OF CAMERA SHOTS AND ANGLES

Try these exercises for creating proper camera shots and angles. On an 8 1/2" by 11" sheet of paper draw four three inch boxes. Repeat the same onto two more sheets of paper.

Below are three exercises based on the material in this chapter. Before the pencil touches the paper, think about what must be drawn to find the best solution to the question. Once you have completed these exercises, do them again.

### **THINK BEFORE YOU DRAW.**

1. On the first page of four boxes, label under each box: CLOSE UP SHOT, ESTABLISHING SHOT, EXTREME CLOSE UP SHOT, and MEDIUM SHOT.  
For each of the above camera shots, draw an appropriate visual to match. Use any character you like provided it is simple in construction.
2. On the second page of four boxes, the top two boxes will be grouped together. Label the top of each box respectively, POV 1/2 and POV 2/2. Label the bottom boxes as: MEDIUM SHOT THREE QUARTER, WIDE SHOT PROFILE.
  - a) In the POV 1 and 2 frames, construct two sequential scenes with two characters talking to each other. In POV 1/2, place the closest character on the left. In POV 2/2, place the closest character on the right.
  - b) In the bottom two boxes create the necessary drawing to meet the required label.
3. On the third page of four boxes, create four different exterior environment backgrounds of a school building. Label under each box: ESTABLISHING SHOT, DOWN SHOT, UP SHOT and WIDE SHOT.  
For each label create an appropriate view of the school building. Just do a line drawing with NO SHADING.





## COMPOSITION AND FRAMING

## COMPOSITION AND FRAMING

In this chapter the focus will continue with character composition and framing. As we progress through the following chapters, background elements will be added.

### COMPOSITION:

A component of composition is the strategic placement of characters and objects to create a leading and visually pleasing image for the audience. Taking this one step further, the character's eye direction, (where it is looking), can lead the audience to an element in a scene or provide proof that a conversation is taking place.

If the character is six feet tall and the one talking is only three feet tall, eyes down to and eyes up, respectively, will sell believability to the scene cuts.



Avoid placing a character directly in the centre of a scene. Always ensure the character has enough room to act.





Also avoid placing a character in a scene position that mimics a character in the same screen position of the previous scene. This cutting to a character in the same screen area causes a "popping" of the characters.

To resolve this popping situation place each character slightly off centre, opposite to the direction they are looking or acting and MIRROR to the next character.



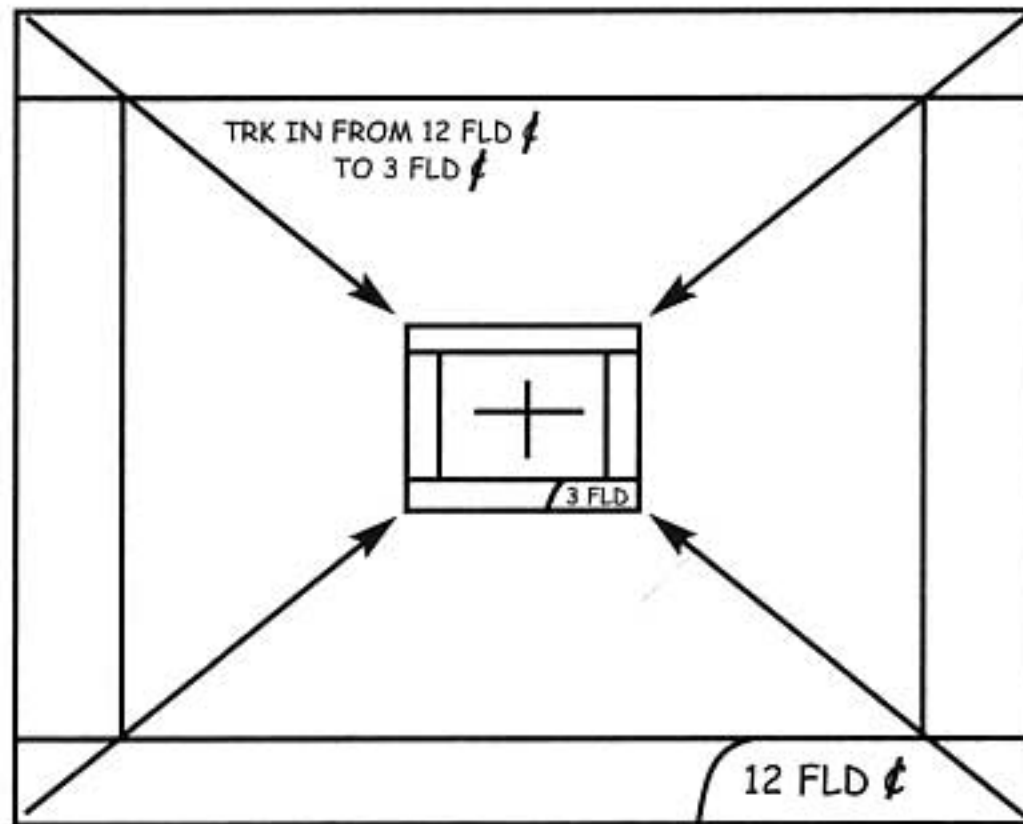
When the first character is on the left, place the second character on the right.

Similar to on a theatre stage, position the characters so they face a front, three quarter angle as much as possible. This slight turn will allow the viewer to visually connect with the characters.

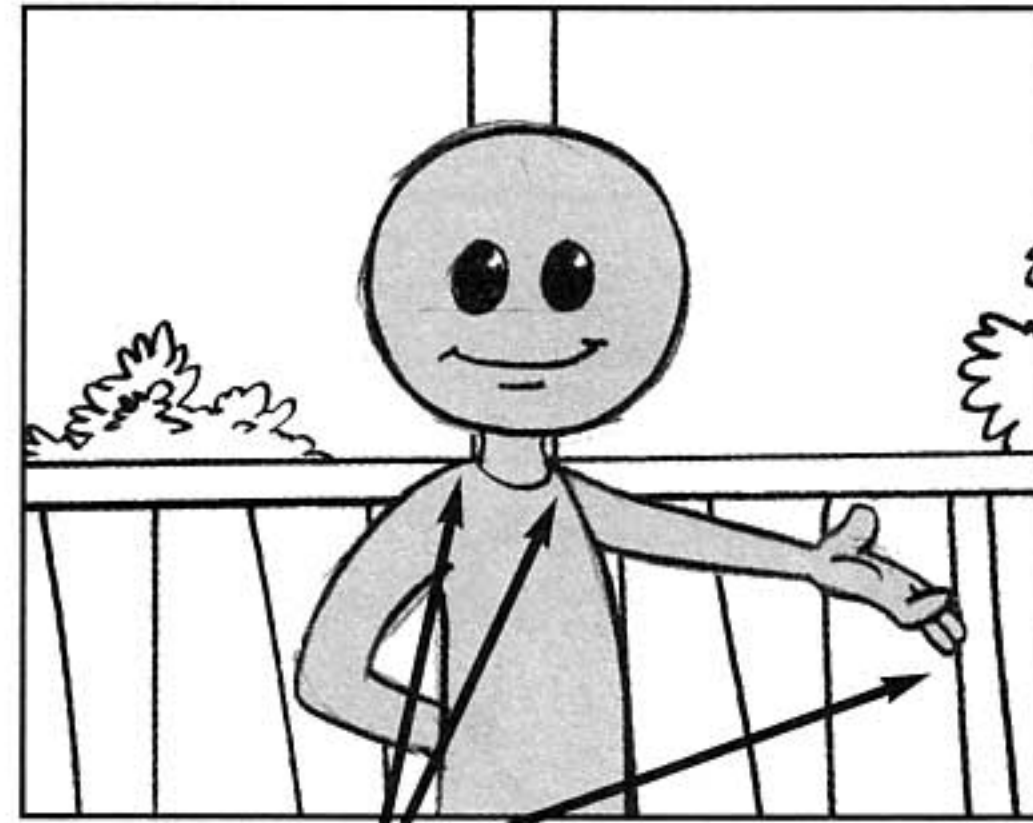


NOTE: Dead on frontals and profiles are flat, boring, and well, dead.

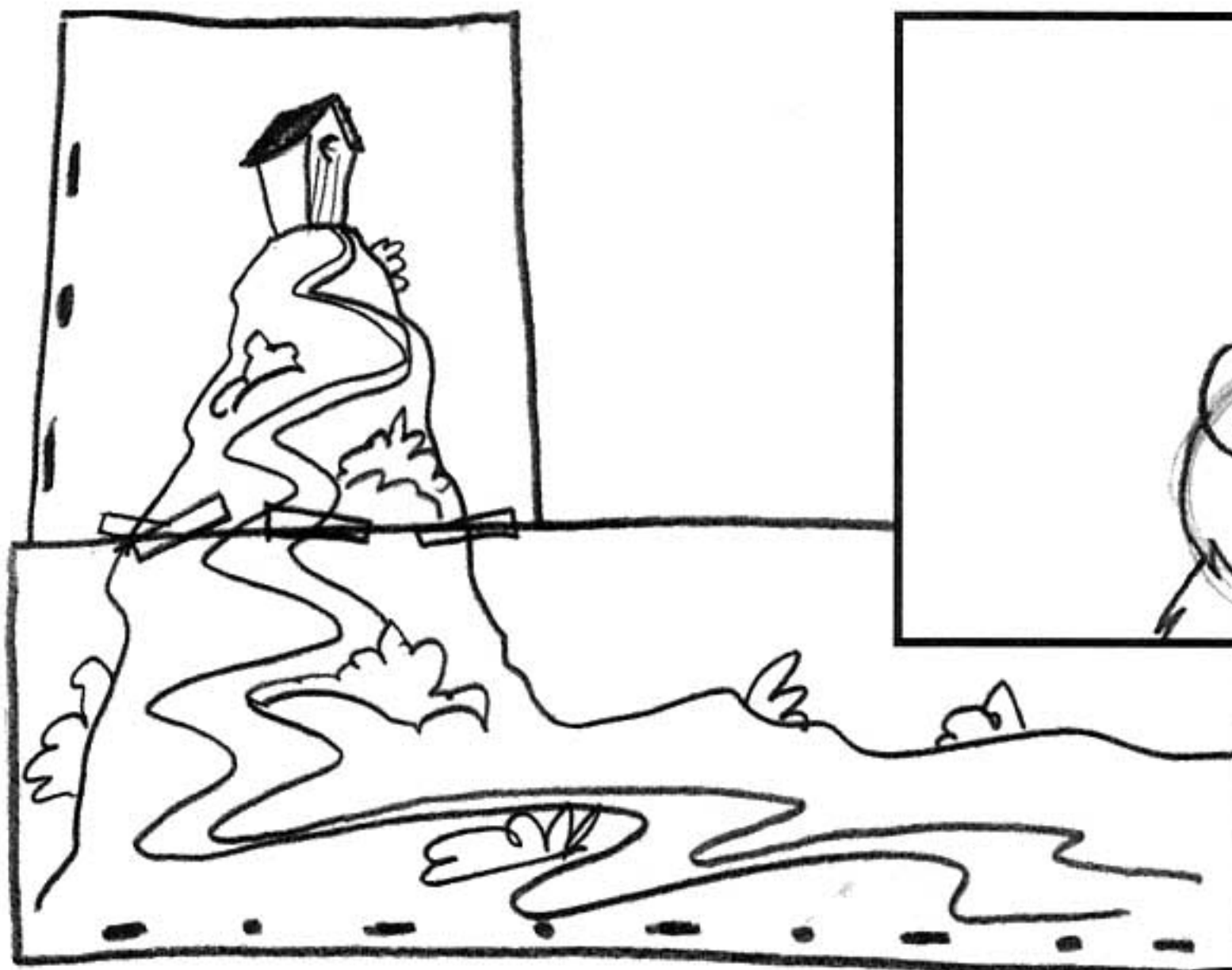
A common problem that happens in composing a scene is an oversight in the technical aspects of layout. Frequent errors occur when creating a camera move such as a pan and a truck in. The scene can become cluttered and unreadable with elements or even impossible camera moves to create in the current studio environment. Below are a few of these examples.



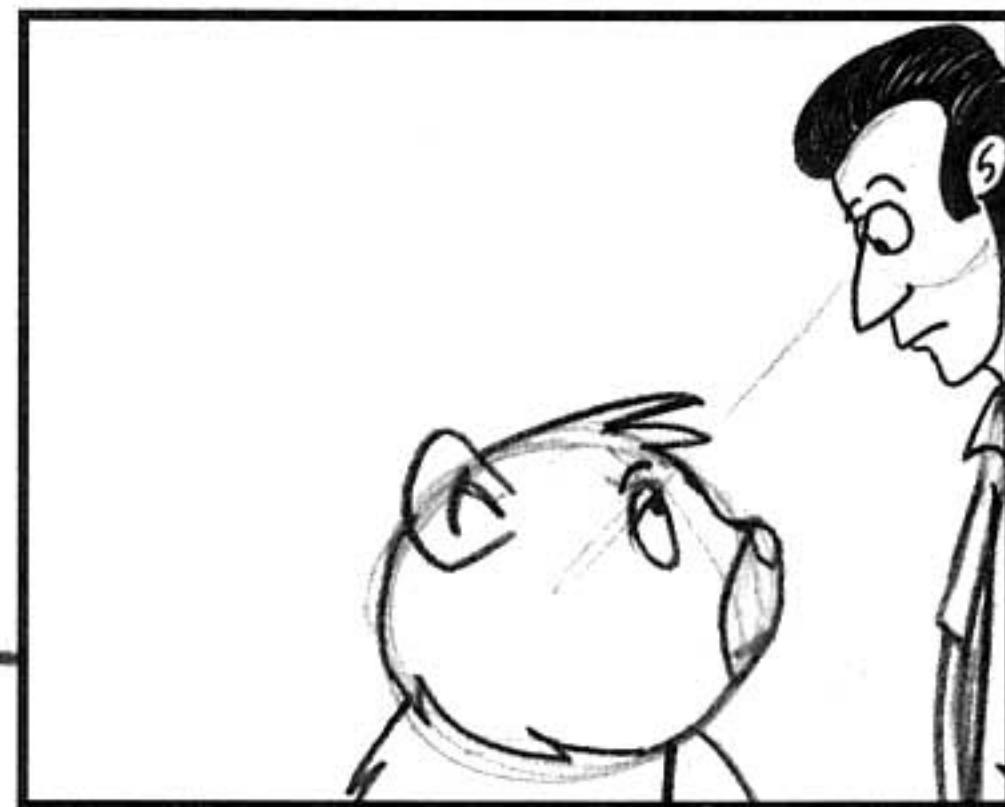
**Extreme Camera Move:** A truck-in from a large 12FLD to a small 3FLD will destroy the line quality of the work. Avoid these extremes in traditional layout. Computer animation can achieve this move with no to little problems.



**Tangential Growth:** Objects behind or in front of a character appear to grow out of the character. Lines of two objects converge to become one line.



**Adding Paper:** Student layout artist occasionally have grand ideas for a background but do not know how to design it. DO NOT ADD PAPER where it should not go. Plan the drawing with thumbnail drawings to fit the standard paper.



**Filing:** Stage the character(s) inside the TV frame.

Remember that you are composing a small drawing of what will eventually become the full size layout drawing. Always check and correct it BEFORE it is put onto the storyboard or made into a layout background.



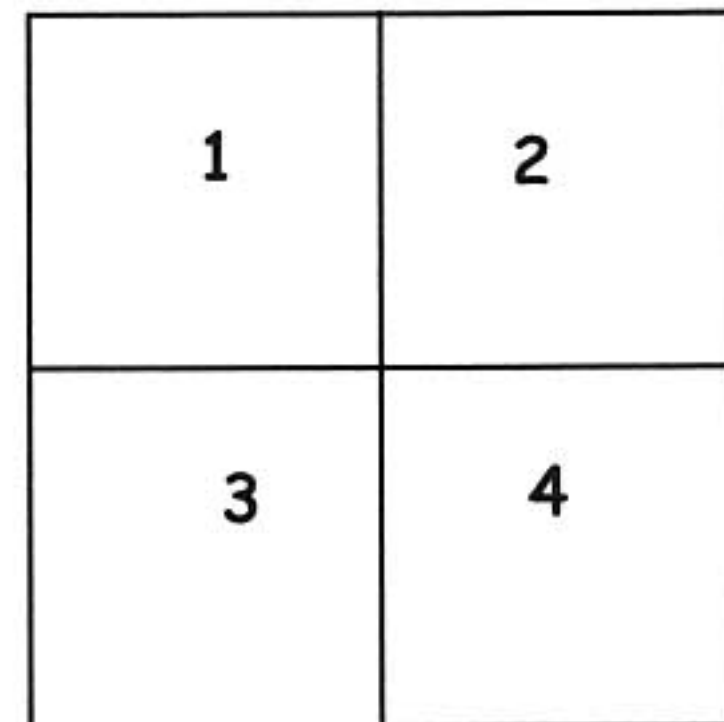
## FRAMING:

Framing or quadrant division is a method of dividing the composition of a scene to create interest.

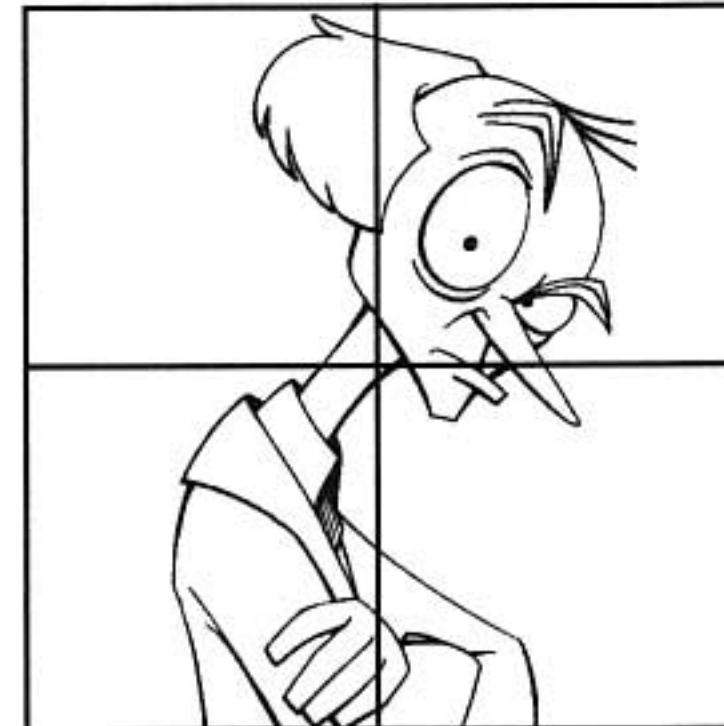
As previously mentioned, avoid placing a character on a full frontal angle as this creates a flat and boring composition. A better solution is to show the character on a three quarter pose. This creates a natural connection with the viewing audience. This is the same principle used when framing a scene.

Try this exercise.

1. Draw a square and divide it into four equal parts.



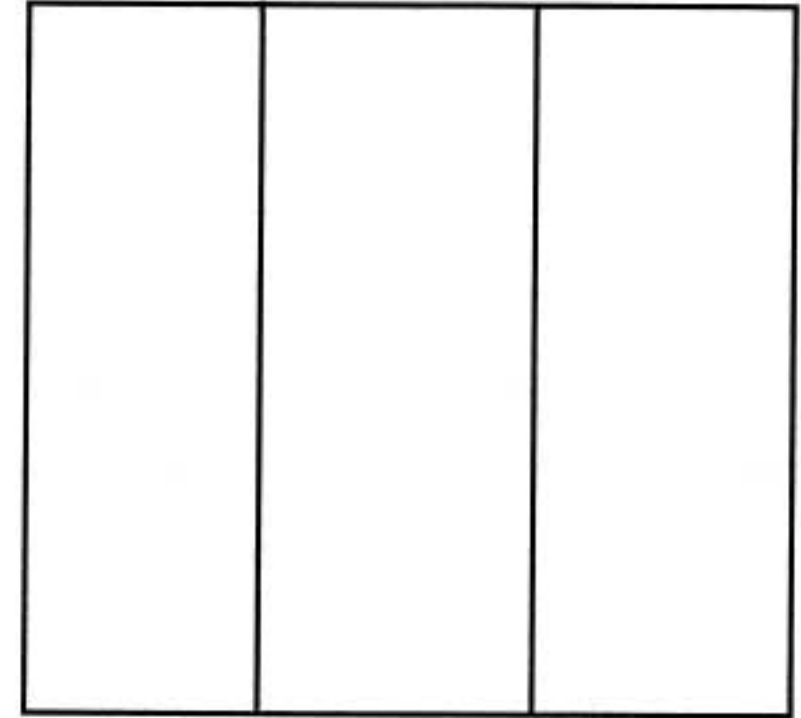
2. Using the dividing box lines as a guide, draw a character in the middle of a box.



Place this drawing in a safe area, as we will revisit it at the end of this chapter. Avoid the temptation to skip forward in this chapter to where we use it again. That will defeat the purpose of this exercise.

For the next exercise, follow along with the examples I have supplied below.

1. Divide a square into vertical thirds.

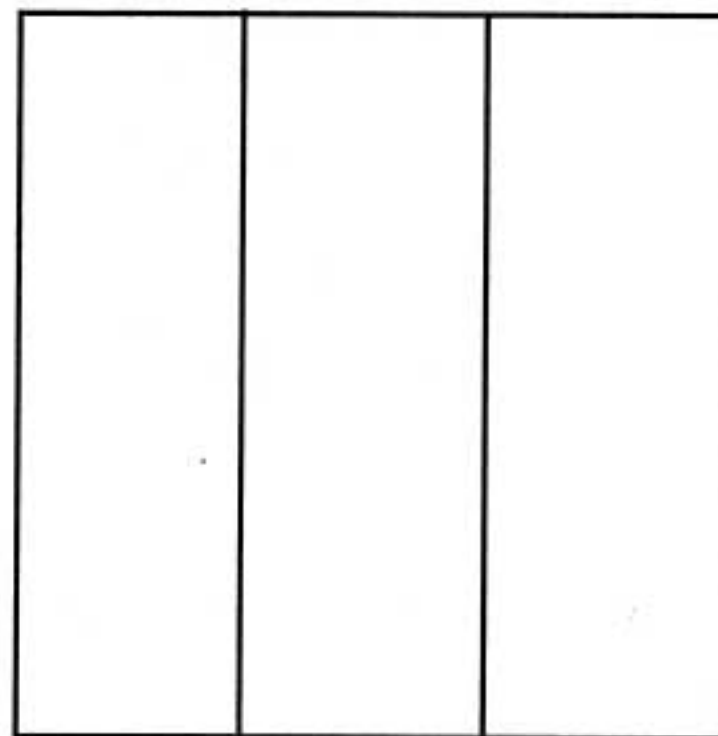


2. Place one character on one side of the third line facing the open side.
3. Add a companion on the opposite side third line.

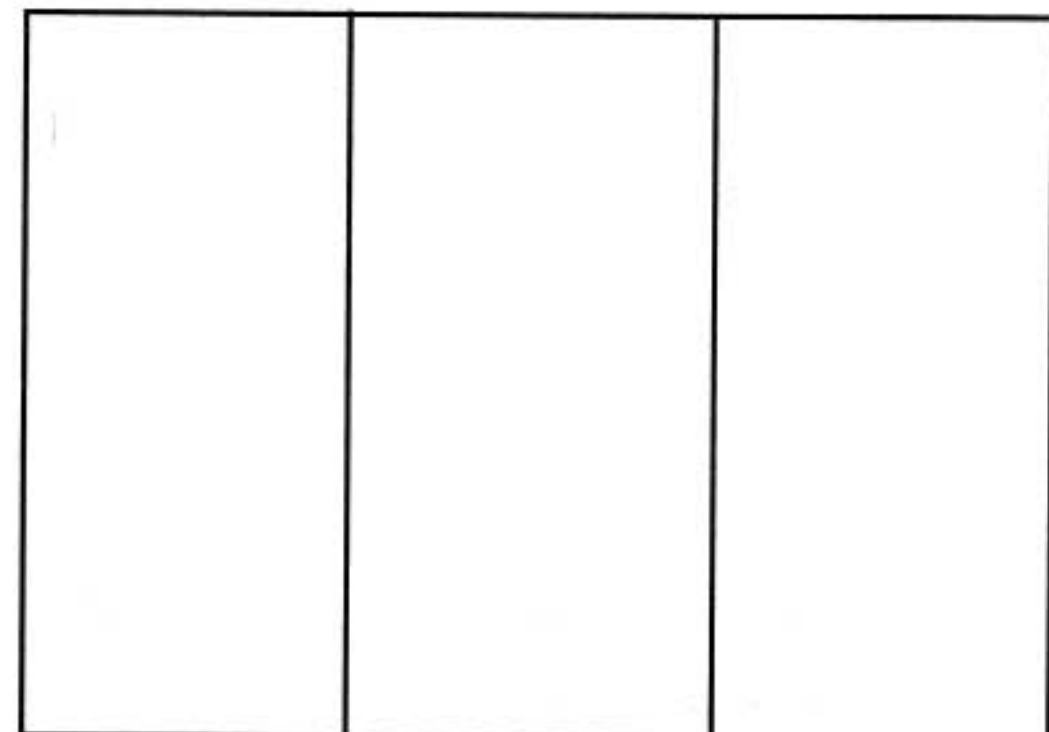


Feature film formats tend to use this division of thirds framing technique to keep the theatre audience involved in the action. As the audience watches a character or element placed in one area of the frame, a transition to the next scene forces the viewer to follow to a new strategically placed element of the movie. View the prehistoric squirrel sequence at the beginning of the movie ICE AGE for a great illustration of this point.

Television



Feature Film

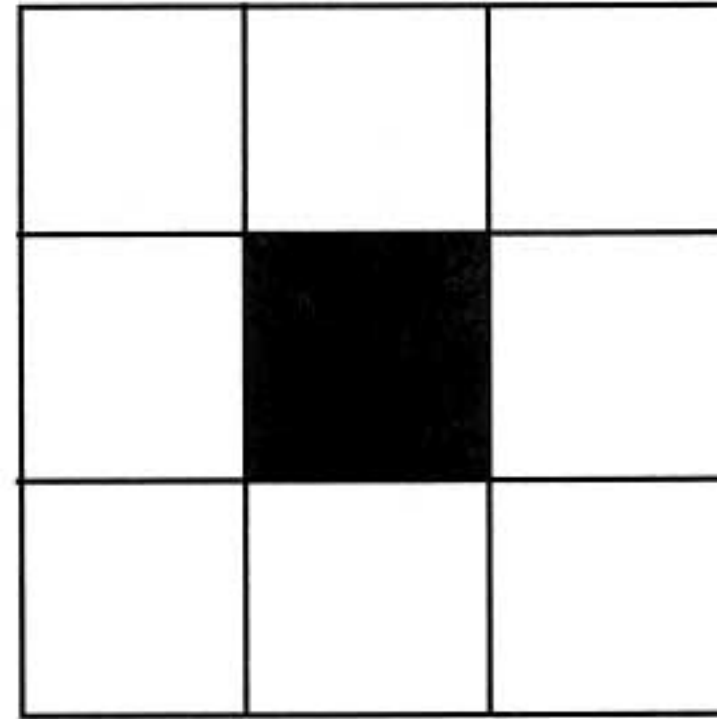
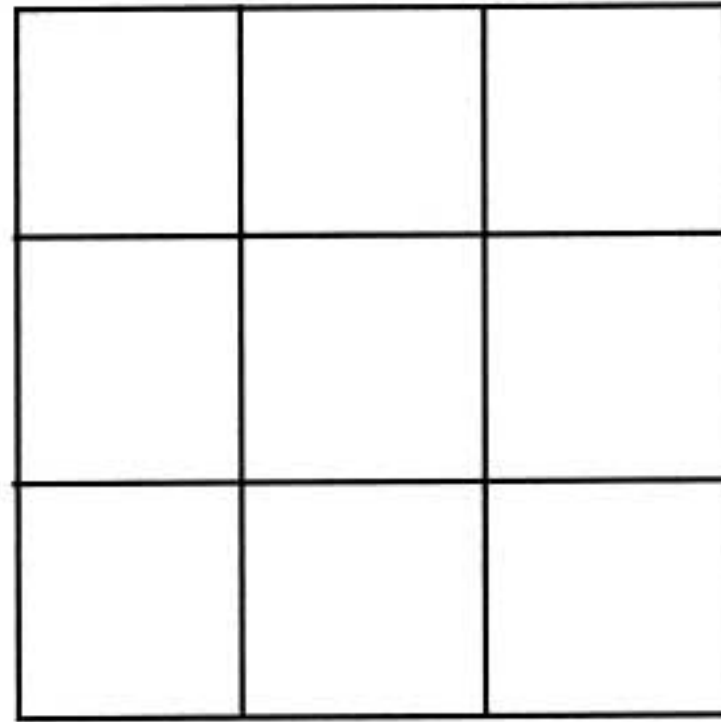


Television animation uses a modified version of this to fit your viewing screen. It is the same approach, with less distance between thirds.

\*"Good Teacher" lady created by Rick Knowles.



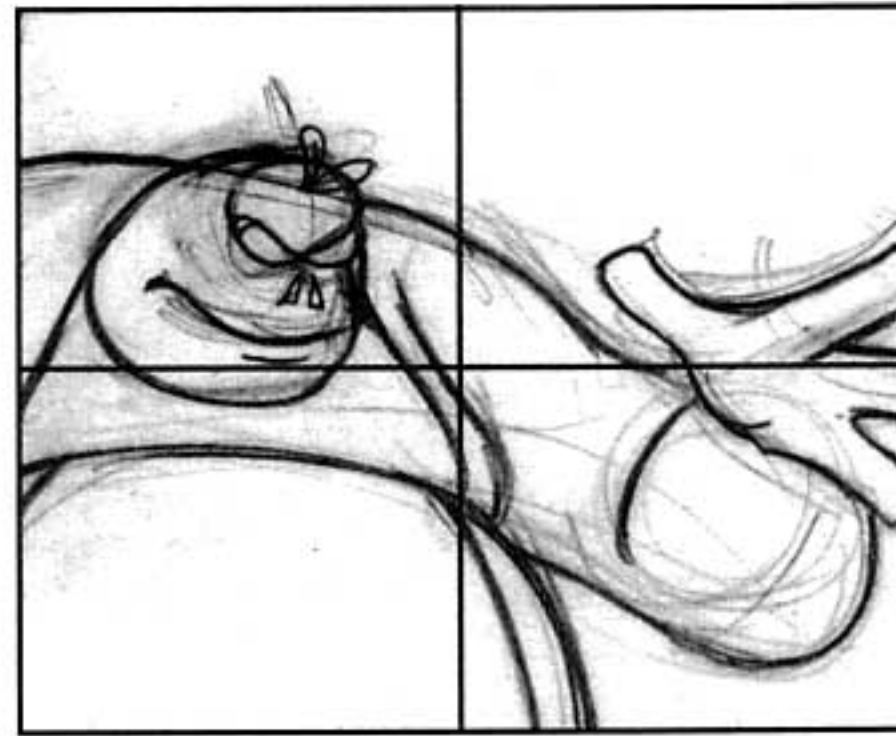
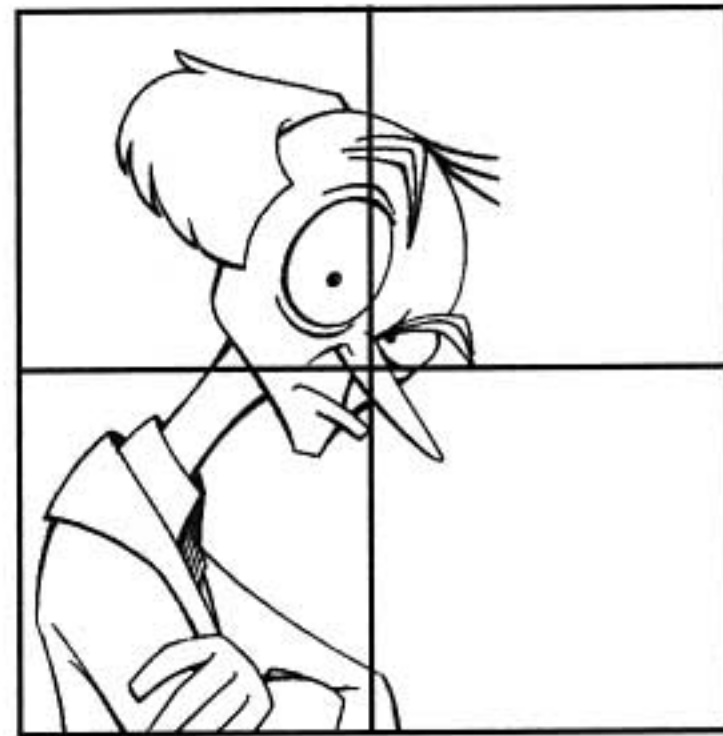
A trick I use to assist students in learning how to compose and frame a scene is to get them to divide the box again. Only this time divide the square in horizontal thirds to create a box in the centre.



The centre box is darkened in and called the dead zone. Avoid placing characters or artwork directly in this darkened zone. The other eight boxes around the edge are where the majority of the composition can be placed.

Eventually, the need for the lines and the boxes will be removed. Continue to practice and your confidence will grow to the point where you can visualize the thirds-division lines in your head as you compose your character.

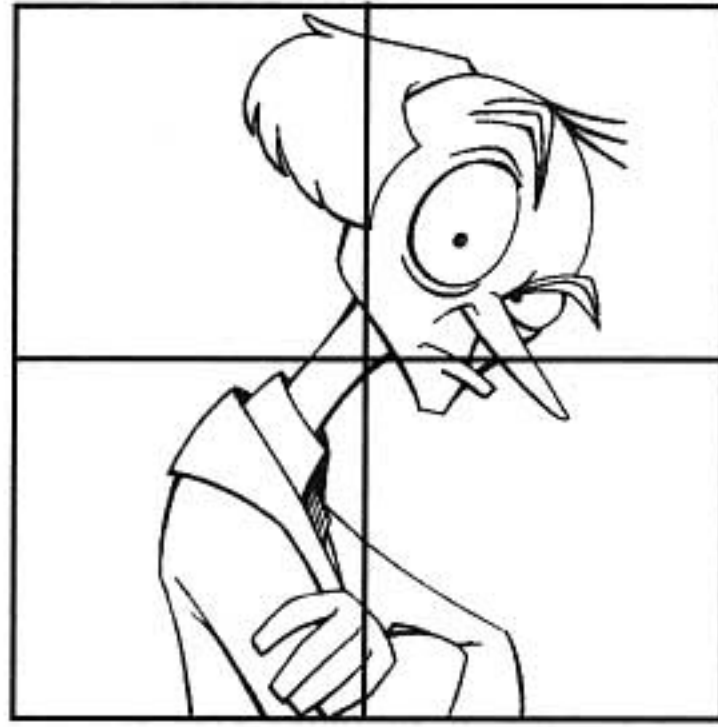
This method of dividing by thirds can be applied to a square divided in four quarters. The dead zone becomes the centre cross hairs region of the square.



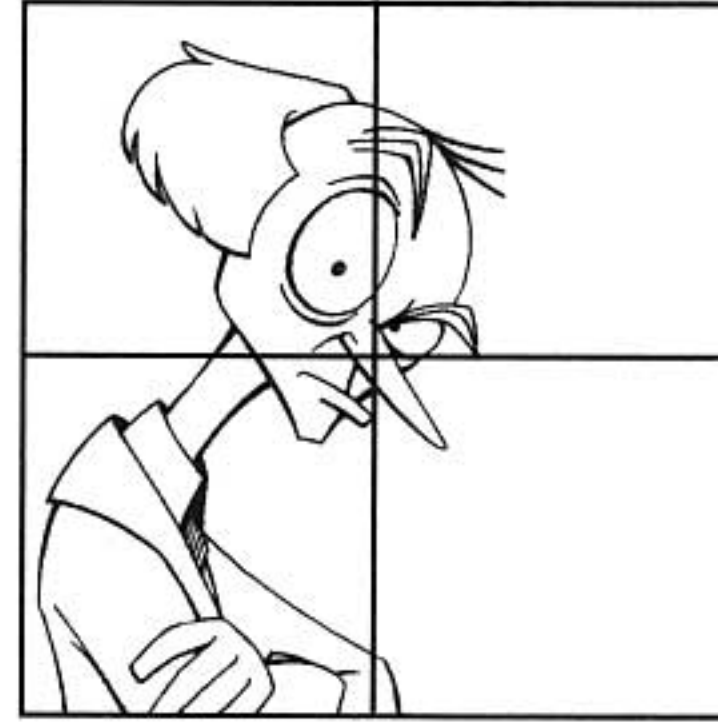
By shifting the character to a position away from the centre, the same interest is created.

To those that did not search ahead to this section, thank you for your patience. To those of you that did skip ahead, supply the answer covered in this section to, "How is a modified version of the thirds method used to successfully frame a composition in television animation verses feature film?"

Compare your first drawing of the character placed directly in the centre of the frame to those drawings of the character placed away from the dead zone.



Too balanced-No room to act.



Off center-Leading space to act.

The first centred drawing has no room for dialogue or action to take place. It is lacking in what is called leading space. Another problem that occurs with a centred character is a confusing visual pop, when we cut from this framing to a similarly centred framed character.

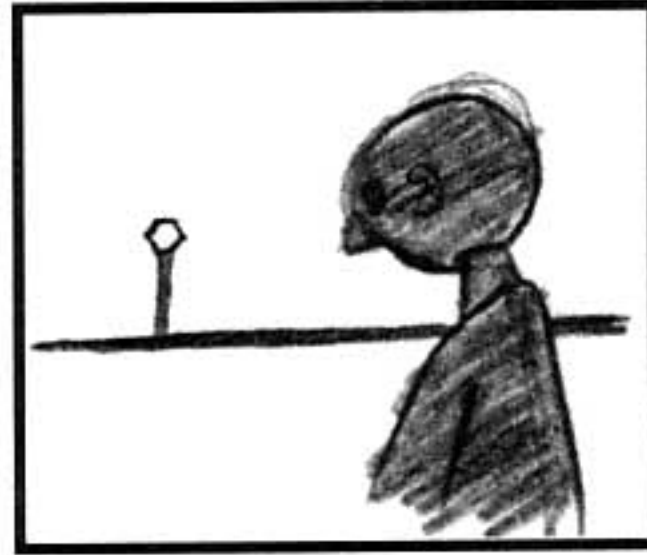
One final comparison reveals that the centred character is boring to look at. By being centred, the air or space around the character is unnaturally too even. The off centred character varies the amount of air or space to create a stronger visual presentation.

Redraw your first character in a new frame that will allow for action, dialogue and smooth cut transition to and from another character using the information supplied in this section.



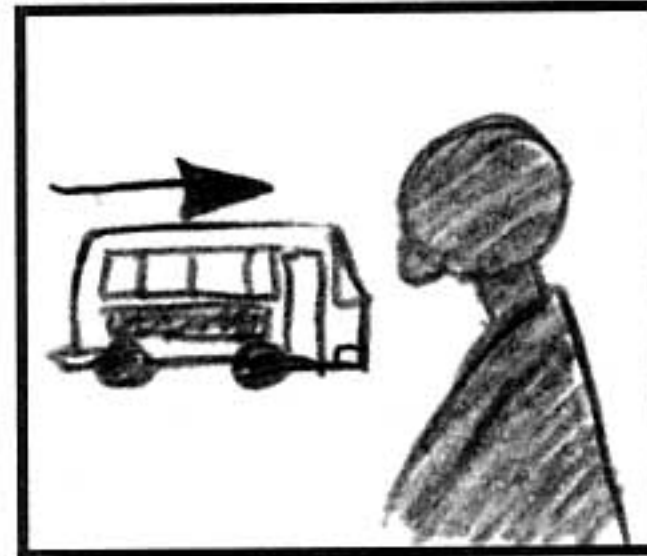
This division of line can also be used to create depth within a scene. As an example we will use a simple bus stop sign on a city street. Take note of how each composition is framed.

EXTREME  
DISTANCE  
RELATIONSHIP



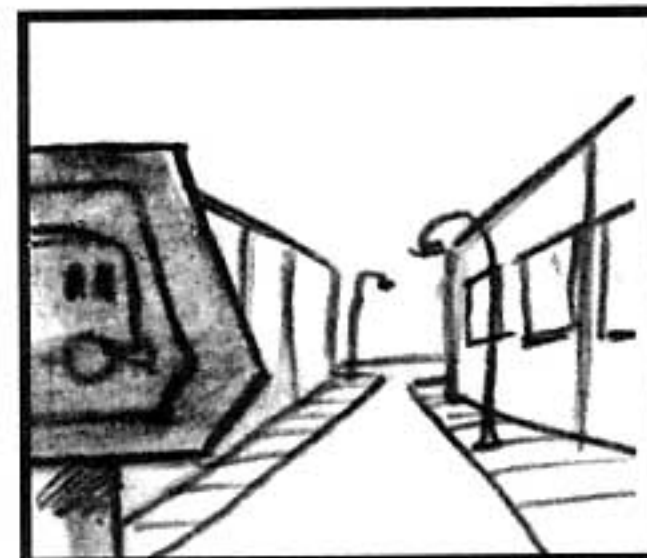
Depth is created by a character placed very close in the foreground and the recognizable bus stop sign off in the distance.

ACTION IN  
MID GROUND



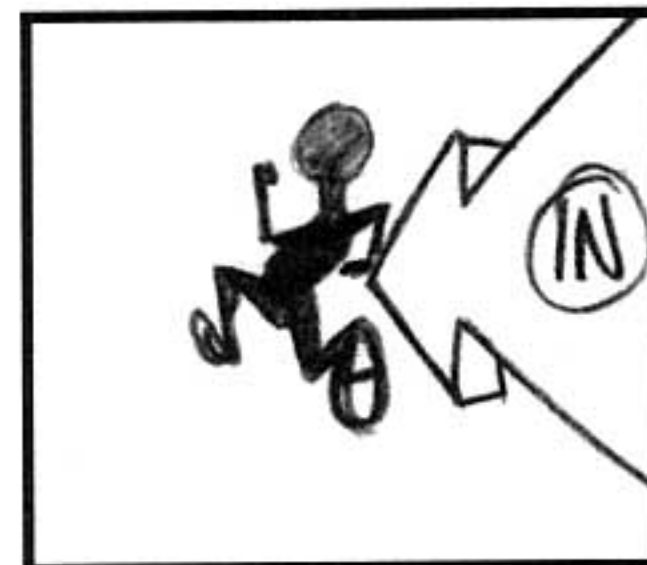
The same set up as the first frame only an animated object, a bus, drives into the midground and stops. A character, in this case, or an element in the foreground becomes a framing element.

PERSPECTIVE  
RELATIONSHIP



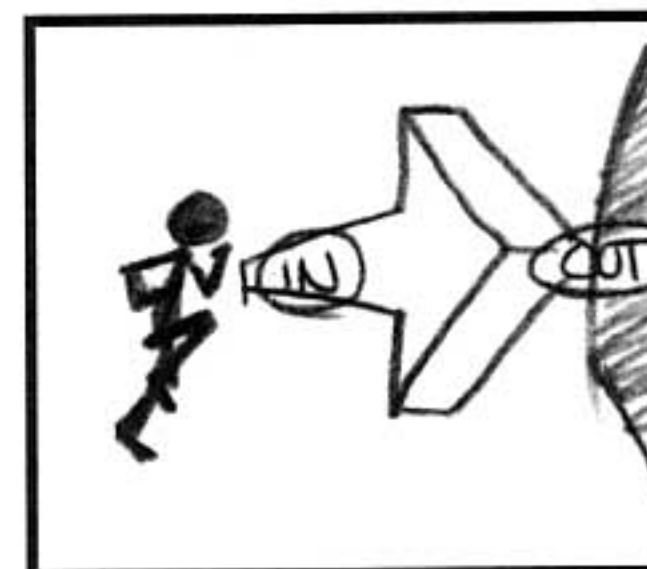
A one point perspective view of the street creates depth through size relationships and diminution. This is similar to the Extreme Distance Relationship example above.

OBJECT  
ANIMATION  
ACTION  
(IN or OUT)



A character runs in then off into the distance of a scene. As the animation gets smaller in the distance we believe there is depth to this drawing. Any type of movement in or out of the composition with perspective will work.

DISTANCE  
THROUGH  
SCREEN  
(INTO and OUT)



A character run from left to right through a frame and increase or decrease in size will create depth similar to Object Animation Action. The difference is that this character does not stay in field.

As demonstrated, by varying the composition and framing of a scene, the audience concentrates on the story not the drawing.

## **EXERCISES:** CHAPTER 3 Composition and Framing

Try these exercises that focus on composition and framing of a character. Use several 8 1/2" by 11" sheets of paper and a blue and a red pencil for these exercises.

Below are three assignments designed to enhance your understanding of composition and framing. Follow the directions closely as the format for completion has changed.

1. Draw two characters that are positioned in a three quarter angle facing each other on a page without any type of box around it.
  - a) The first character is a thirty-year-old lady who stands at an average height. In her hand she has a leash that is attached to a collar of the second character, a twenty-foot high dog. Ensure that both characters can be clearly seen without being cut off by the paper.
  - b) By drawing the appropriate sized boxes, frame the lady to a MEDIUM SHOT and the dogs face to a CLOSE UP.
2. On a new sheet of paper draw a five inch box and divide it into thirds horizontally and vertically. The end product should have nine equal squares inside. Darken in the centre square with a red pencil. Using a blue pencil, compose a scene with three characters of different heights. We should only see the characters from the waist up so make allowances for the shortest and tallest character.
3. Create a sequence of four scenes, boxes, for the following actions:
  - a) A character is standing near a tree by a pathway.
  - b) Between the tree and the pathway a cat walks and stops in the middle of the screen.
  - c) Start the cat off in the distance, running towards us then out of the frame at a three quarter angle while being chased by the character.

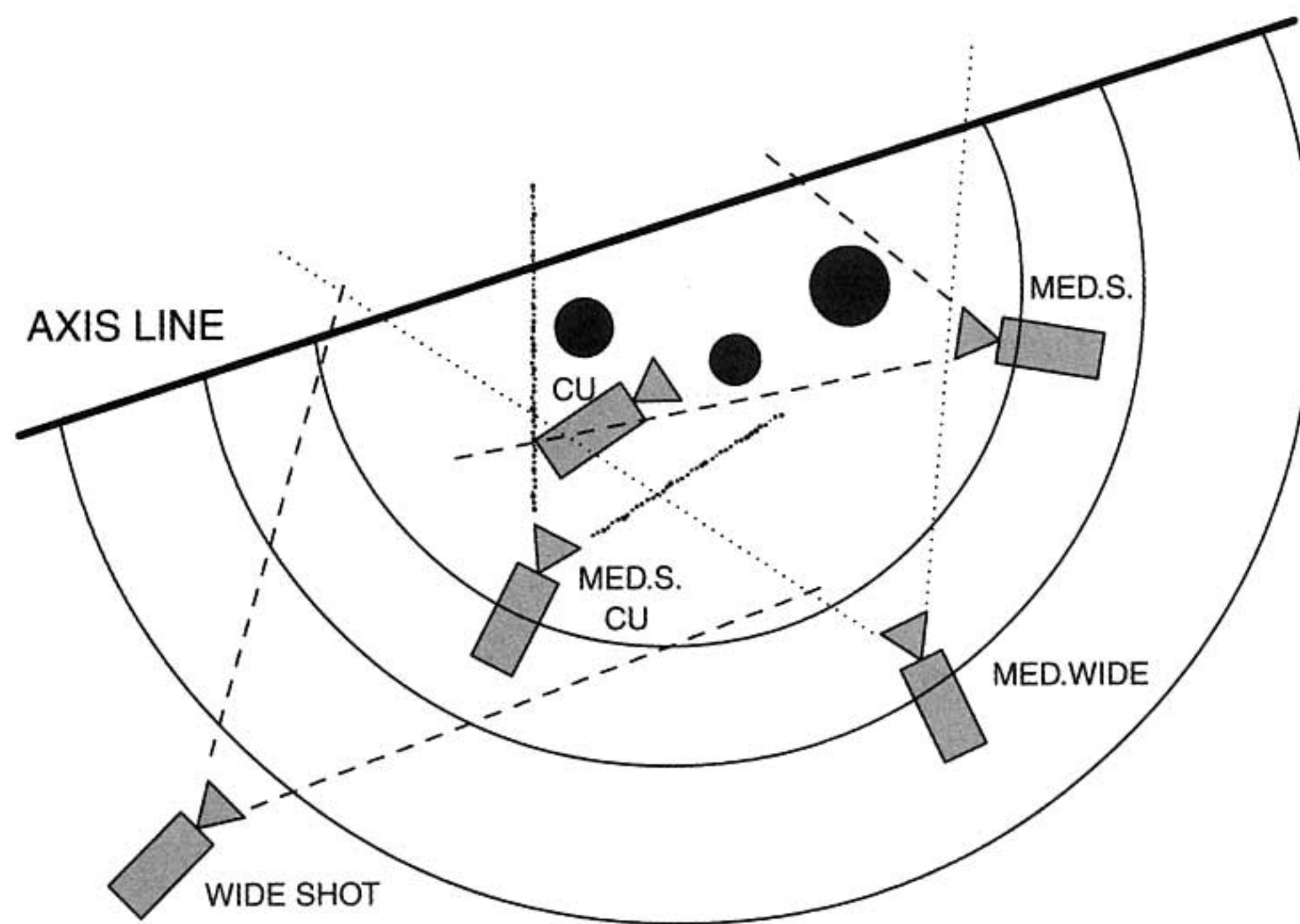


## STAGING AND PERSPECTIVE GRIDS

## STAGING:

Staging is the understanding of where the characters are located in relationship to all the elements around them. This environment is first created by the storyboard artist who plans an overview of each scene from information provided in the story script. The layout artist now must check and adjust the final positioning of the environment and includes further attention to character framing, camera placement and overlap of action based on the storyboard drawings. By having both the storyboard and the layout artist double check, the scenes flow naturally together.

Staging evolves from placing the characters and objects in such a way that the camera never passes the 180-degree axis line to maintain the viewers continuity of the scene. The 180-degree axis line is a set boundary that the camera should not pass through. This known as the 180-degree rule. In the example below drawn arcs show the mobility of the camera up to the axis line.



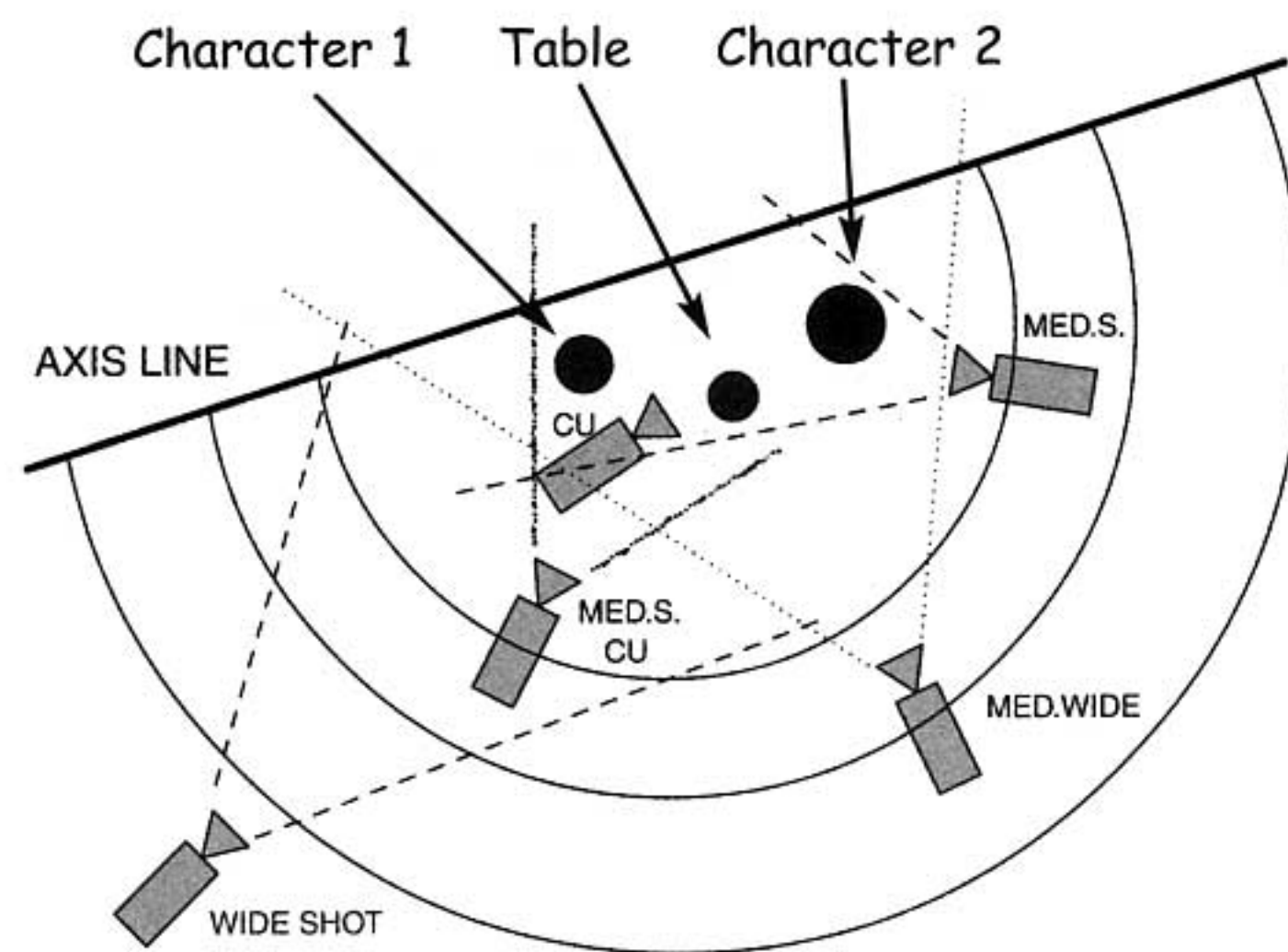
To save time, staging of animation thumbnail visuals can be viewed from a direct overhead view. Simplify characters, props, and cameras to basic shapes that show where the best placement or staging should be.



Although the axis line is drawn in place, it is moveable. In order to accommodate a new character or element, the axis line can shift. The 180-degree rule still exists; only the stage has moved. How do we know whether we have to keep the axis line where it is to move it? It is up to the requirements of the scene, introduction or removal of characters and the use of camera shots. For simplicity, let us keep the axis line in place to explain camera shots.

The staging of characters and objects for storyboard and layout compositions rely on the use of Camera Shots within the 180-degree axis line to show the audience what we want them to see. As seen in this example below, there are two dots that represent two people and a square that represents a table. The five different cameras placed along various 180-degree arcs will each give a specific view from where they are positioned. By cutting back and forth between each of these cameras, as required by the written script, the audience watches the two people and table from interesting, different and logical points of view.

By keeping all of the cameras on only one side of the 180-degree line, the audience interprets the images of the various camera shots presented to create an understanding of where the two people and the table are situated on the stage. This logic would not take place if the camera were to cut to the opposite side of the 180-degree line. This would cause the audience to become disorientated and unsure of what they are viewing.



To further demonstrate staging and the 180-degree rule, let us use the following analogy of a theatrical play and the audience.

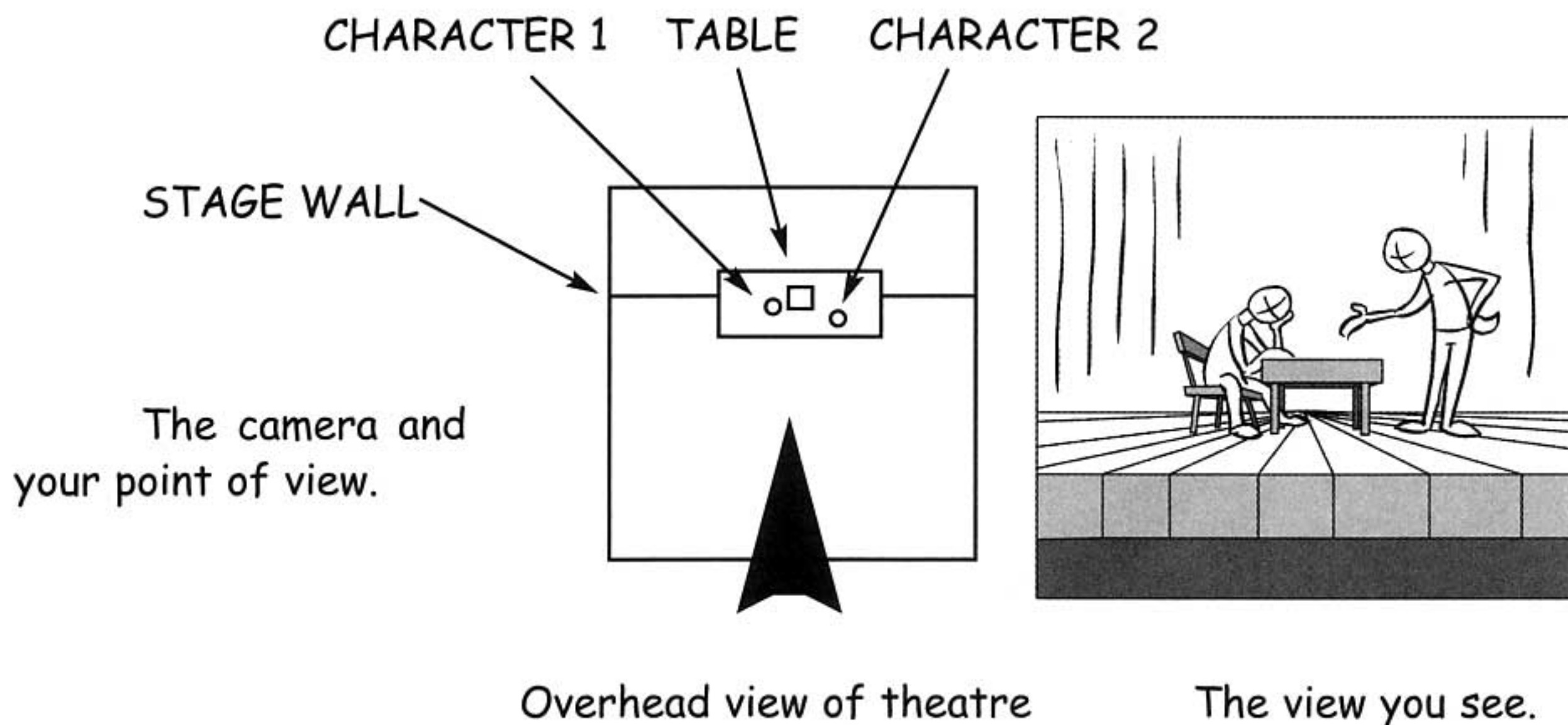
For anyone who has not experienced a theatrical production or been a part of a school play, the audience and stage are usually two separate components. The audience does not move around the actors, so the stage must be designed to not interfere with the actors and the view seen by the audience.

Using the pervious example of two people and a table, I have placed them on to a theatre stage. To the right is a three quarter aerial view of this location.

A location design serves as an overall blueprint and guide for element placement, size and spatial relationships for scenes required from this area. Characters are not always included in a location design.

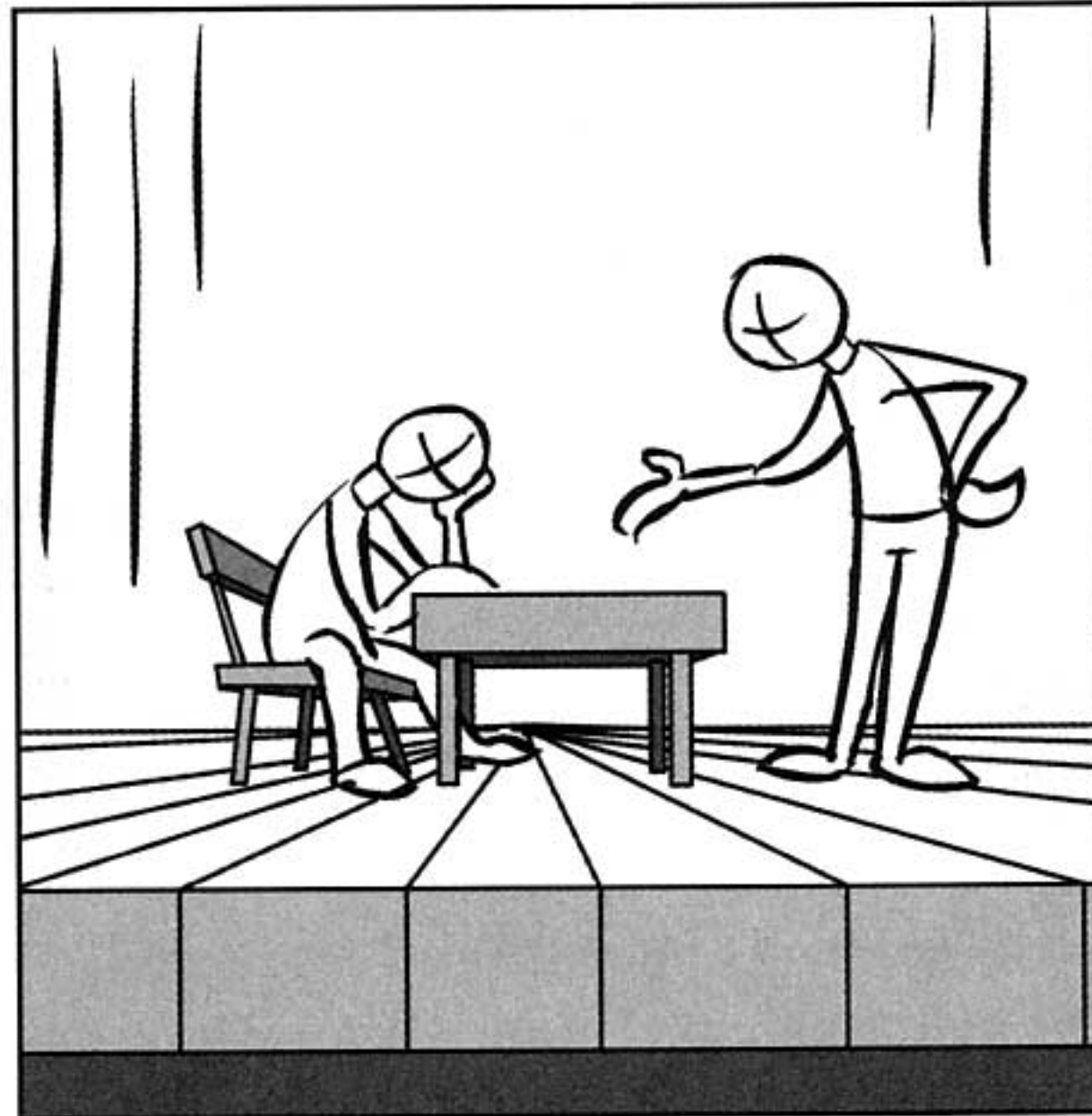
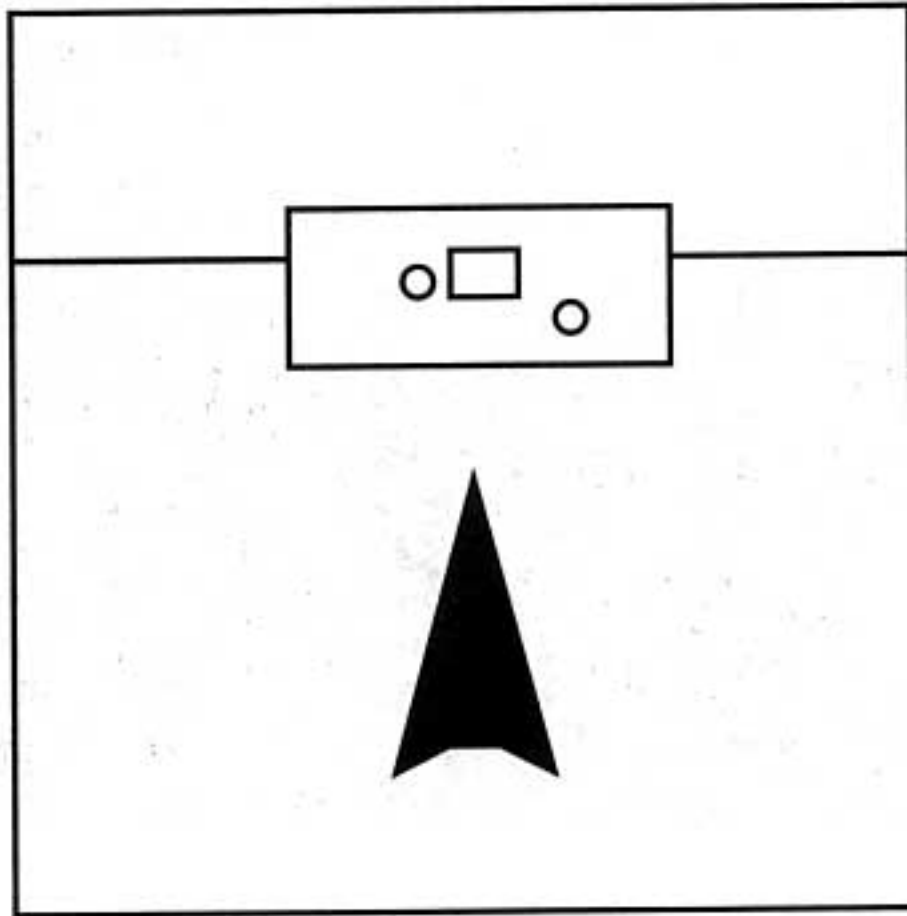
On the following pages of this chapter, we view examples of a theatrical play stage from various camera positions. To understand what would be seen from these positions, an arrow is used to represent the camera and your point of view. The back of the stage and stage doors are the 180-degree axis line that you cannot pass through.

As you move to various angles and distances away from the stage, each example demonstrates two versions of the view. The first box contains a simplified overhead thumbnail based on the 180-degree axis line and arc. The second box contains a view as seen by the camera and you.

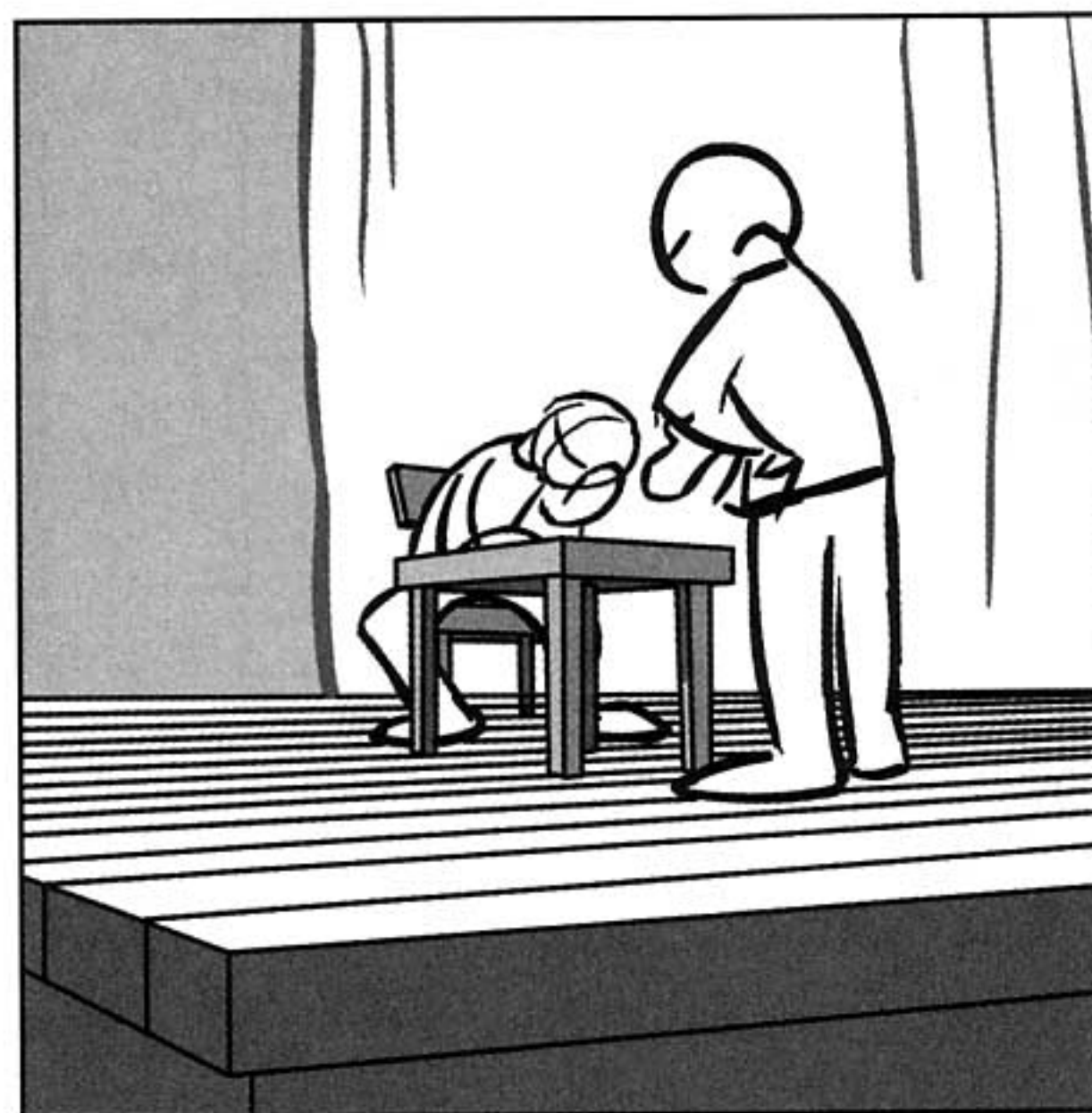
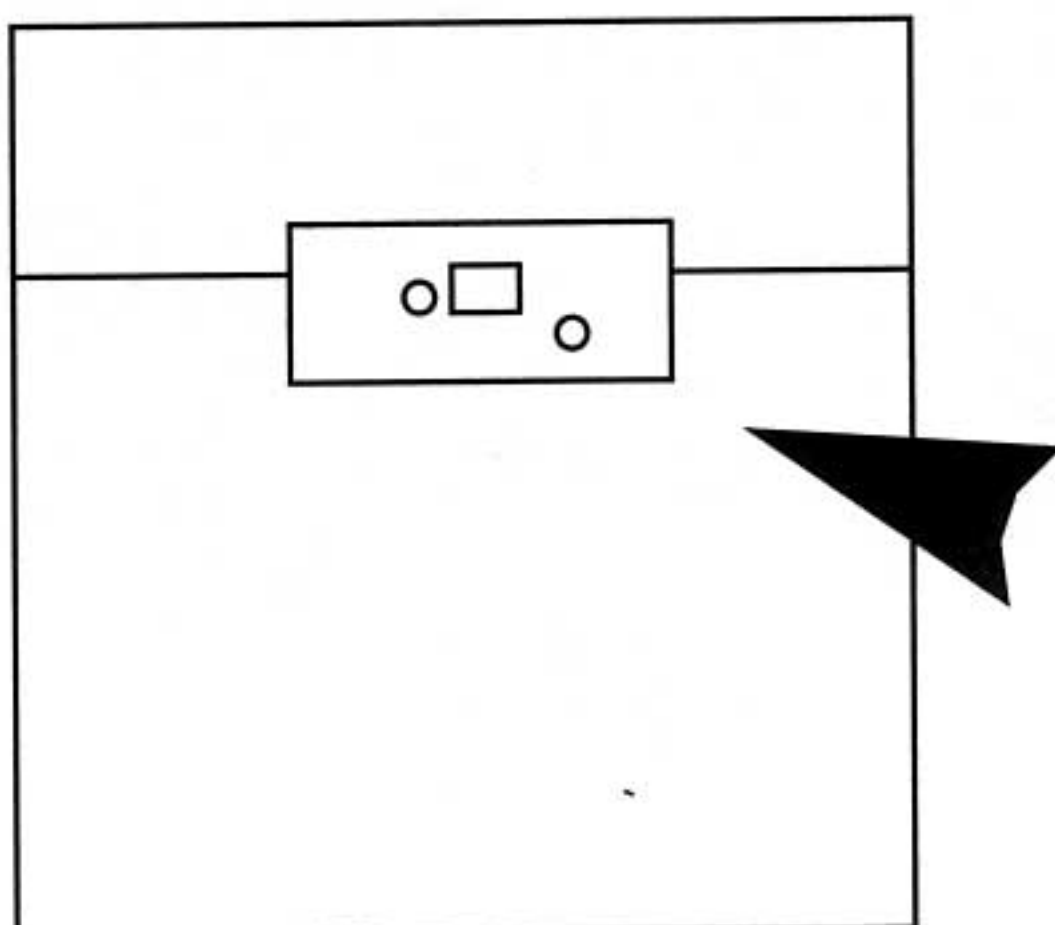




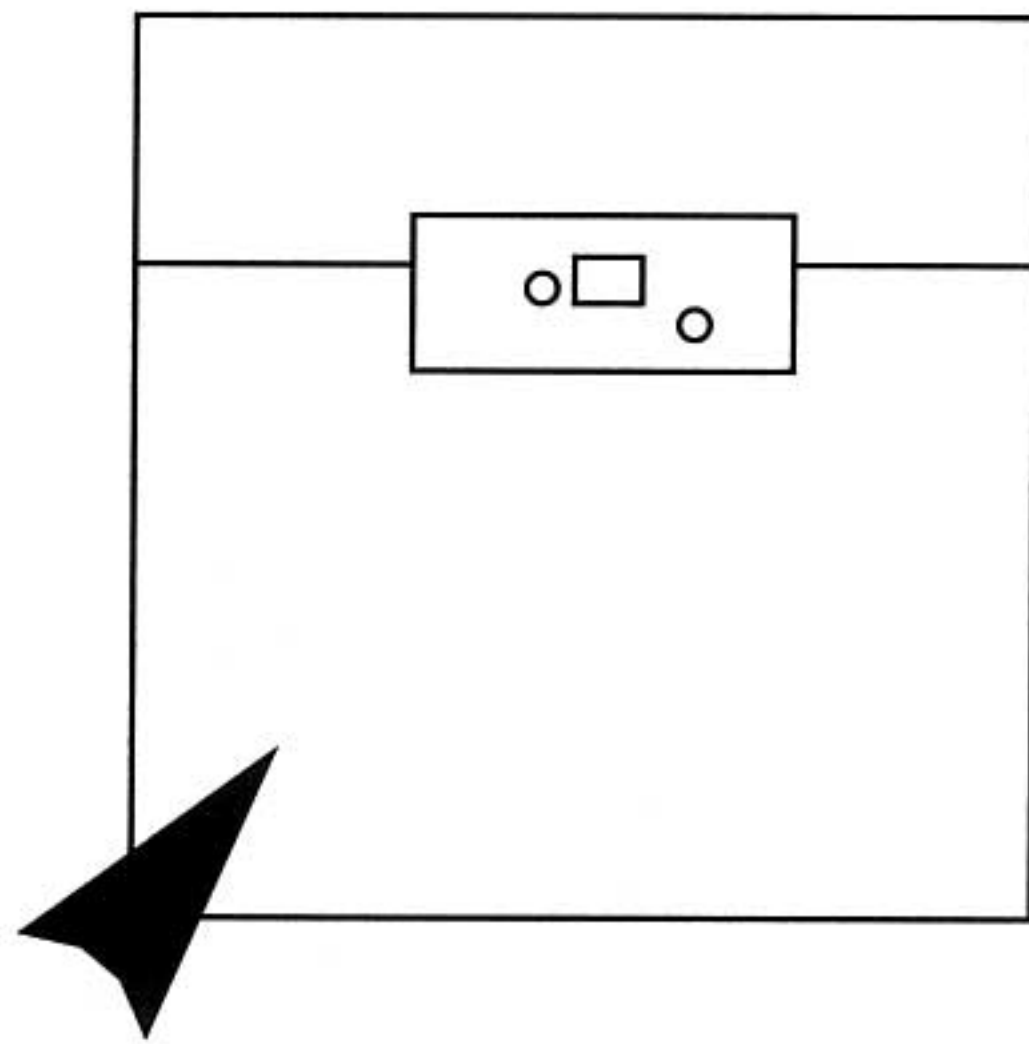
You are seated in the middle of the audience of a theatre. At the back of the theatre stage there is a large painted background picture with two actors in front of it; one seated at a table and one standing on the opposite side. The floor is made of long wood planks that run from the back, lengthwise, to the front of the stage. From your point of view, in the middle of the audience, each actor can be clearly seen on the stage.



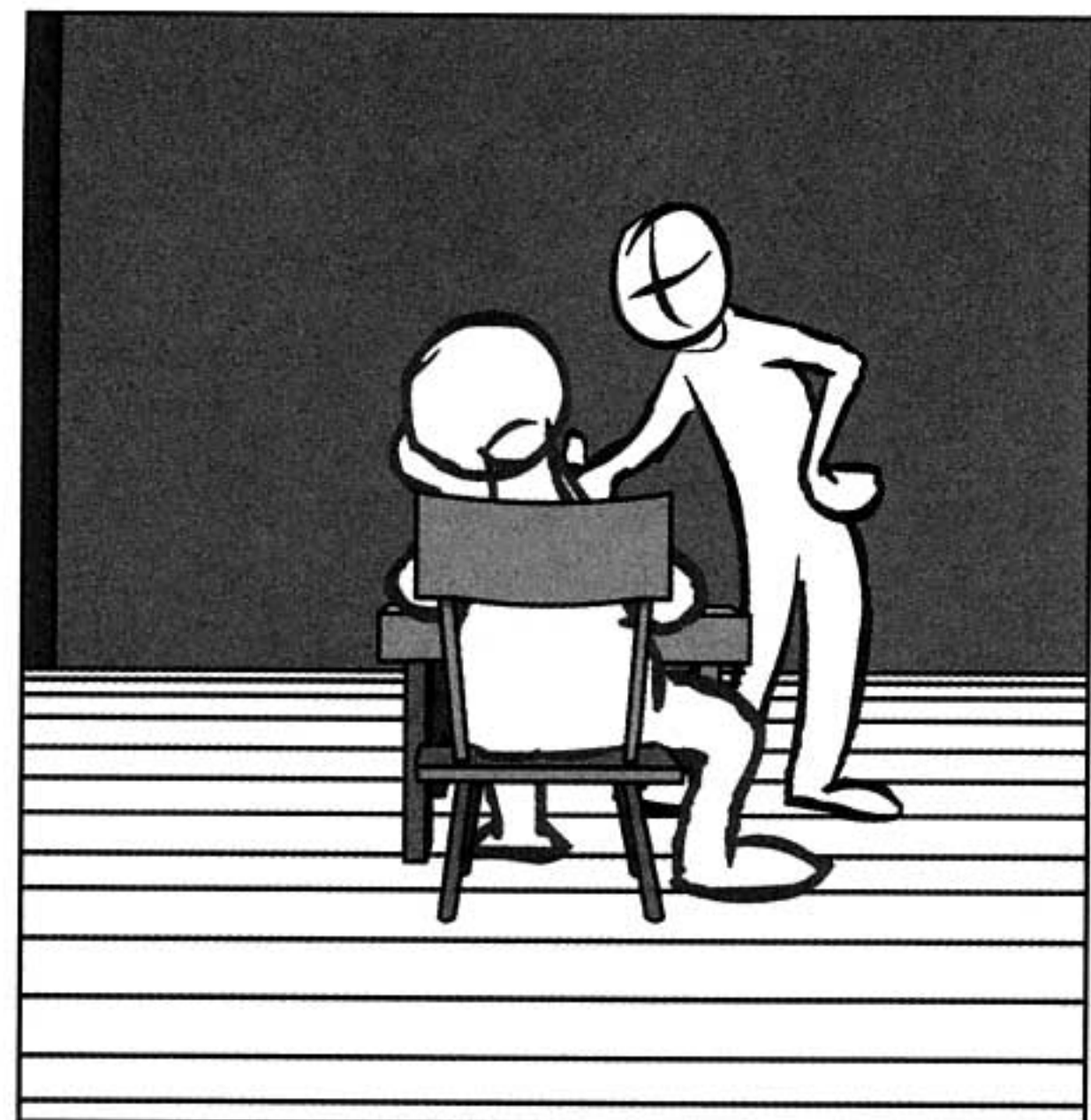
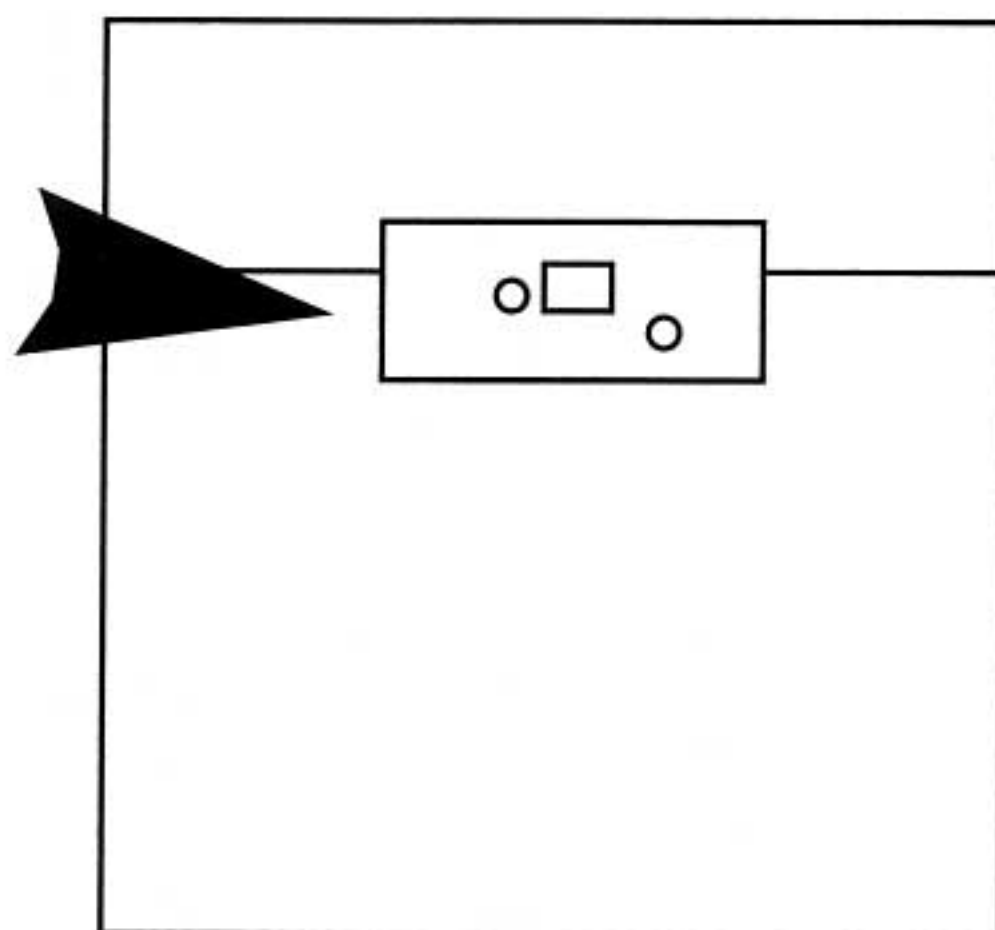
Then, a tall person sits in front of you. To be polite you move to the far right side one row back from the stage. Although the characters on stage have not moved, you can still see them clearly.



Again a tall person sits in front of you and you are forced to move to the only other free seat in the theatre located at the very back left side of the top balcony. The characters are farther away but they can be clearly seen on stage.

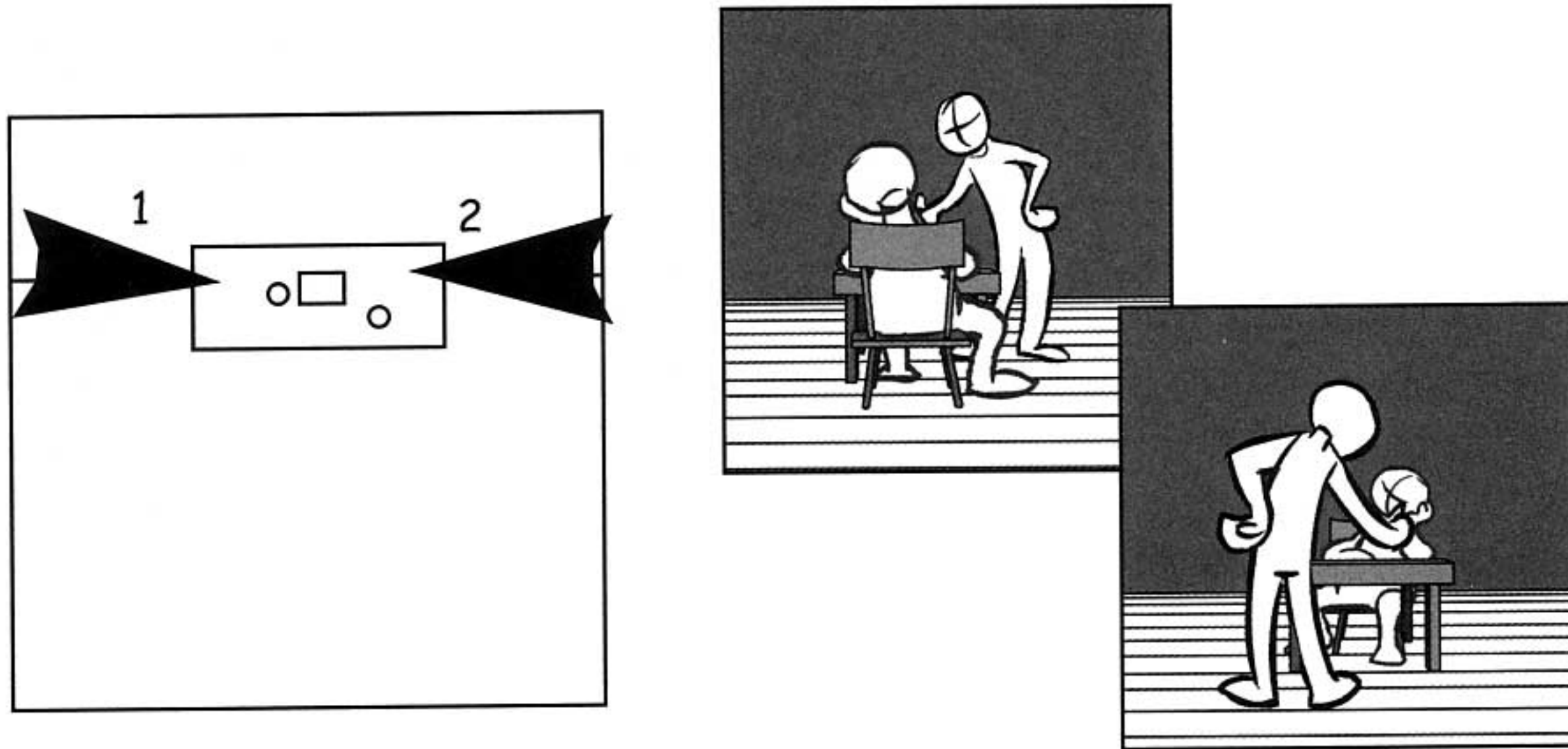


Now, every person stands in front of you and completely blocks your view. You decide to walk back down to the main floor and complain to the manager who sits behind the door on the right hand side of the stage. It is locked so you try the left hand side door of the stage. This too is locked. You can however see the show from this angle.





What would happen if we used the same example and placement of the axis line, only the camera was placed directly on the 180-degree axis line at opposite sides of the stage? Would this work?



Considering many famous directors have done this on film, the answer is yes. It will work, however it is not the best way to depict a scene or scenes. Remember that your goal is to tell a clear, visual story to the audience. Similar to crossing the axis line, by placing a camera on the axis line at opposite ends the audience can become disoriented and confused as to what they are seeing. My advice is to experiment with many other alternate camera views.

**"What about The Matrix, that scene in Shrek or Lost in Space where the characters froze as the camera swung around them. Didn't this brake the 180-degree rule?"** many students have asked.

The standard 180-degree rule works in most films. However, with rotations around characters like in the movie The Matrix, this rule is bent, not broken.

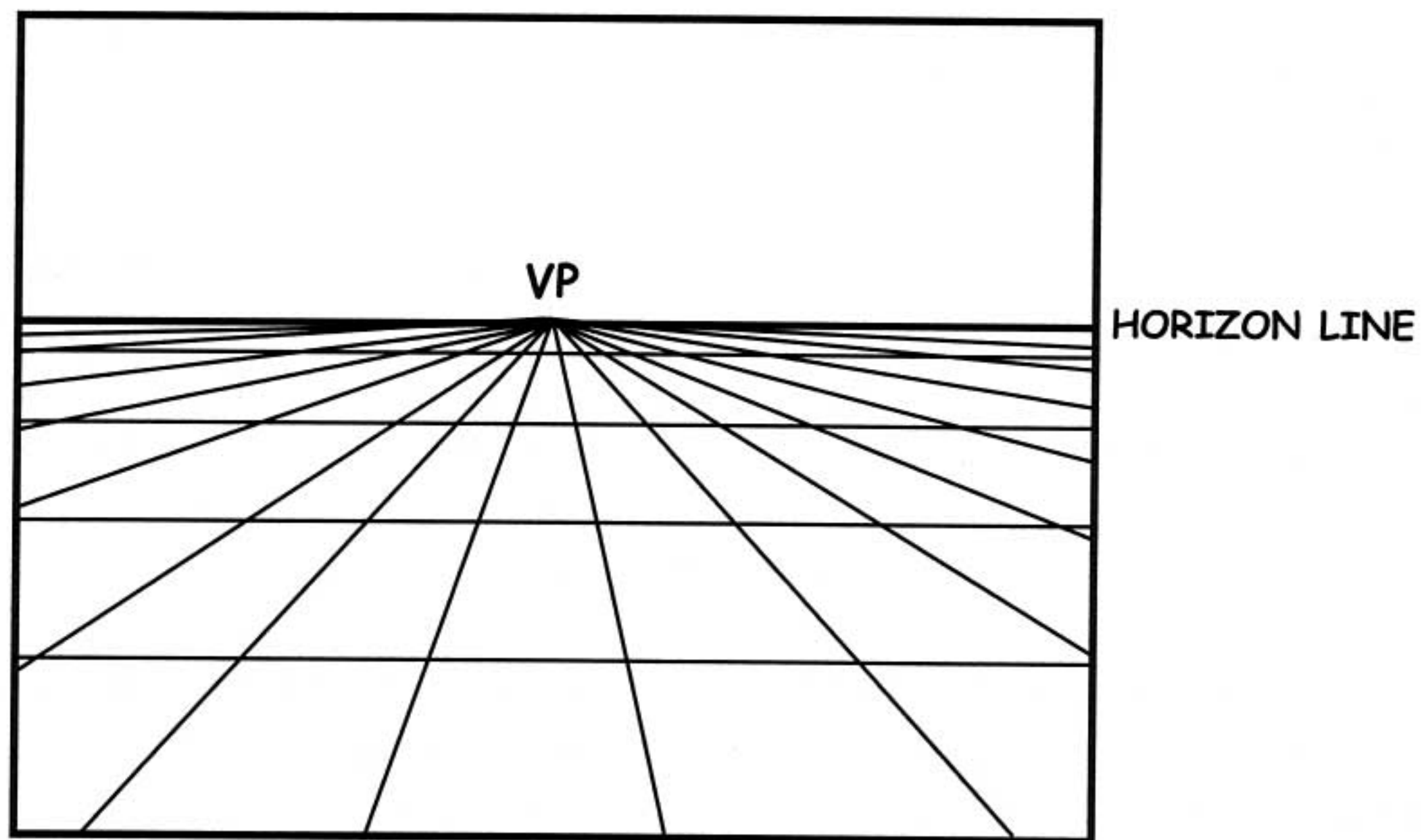
### WHY?

Since the camera is continually filming the audience can clearly see the new relationship of the characters and surrounding background. If it was to just cut from one side of the axis line to the next, the audience will be disoriented and confused as to what is shown.

## PERSPECTIVE GRIDS:

As explained earlier in the chapter, Introduction to Perspective, perspective grids are lines that can be drawn on the ground, back to one or two vanishing points to show the contours of the environment. Perspective grids are a continuation of staging as it defines exactly, what the floor perspective is that the characters or objects are standing.

Think of the floor that the actors from the previous theatre analogy were standing on; the floor is made of long wood planks that run from the back, lengthwise, to the front of the stage. To make this work correctly, our point of view is directly in front, middle of the stage to create a one-point perspective view.



The lengthwise boards now become part of the perspective floor grid. By adding horizontal lines that are closer together in the distance and further apart towards the foreground, a rough unmeasured perspective grid is complete. In animation this is a very crucial element of background and character layout to ensure the characters stay realistically on the ground.

**What about accuracy? The perspective grid above has lines that were guessed not measured. How can we make this more accurate?**

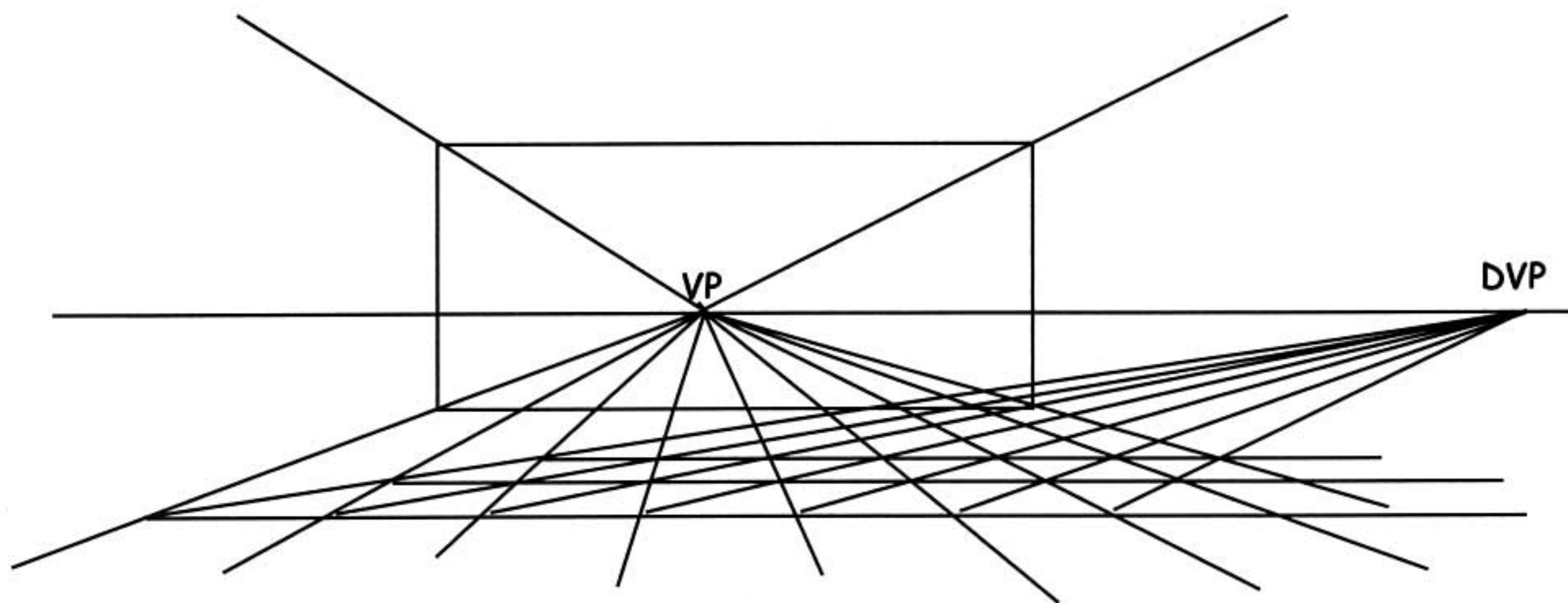


As a first year animation student, I was confident I knew how to draw a simple floor grid. One day in class, the opportunity arrived to create and clean up a dynamic, well-constructed perspective grid inside a very solid one-point room. I finished the project rather fast and took it over to my layout instructor, Glenn Chadwick, for his approval. He carefully looked at my work. Glenn rubbed his chin, looked at me, "Is this your rough drawing?"

I was stunned. How do I respond to this question? I thought of many things to say, question and defend. What was missing? What was wrong with the drawing? Why was he asking me this? So I said, "Yes?" and sat back down at my animation desk with paper in hand. I did not want to admit I had no idea what was wrong.

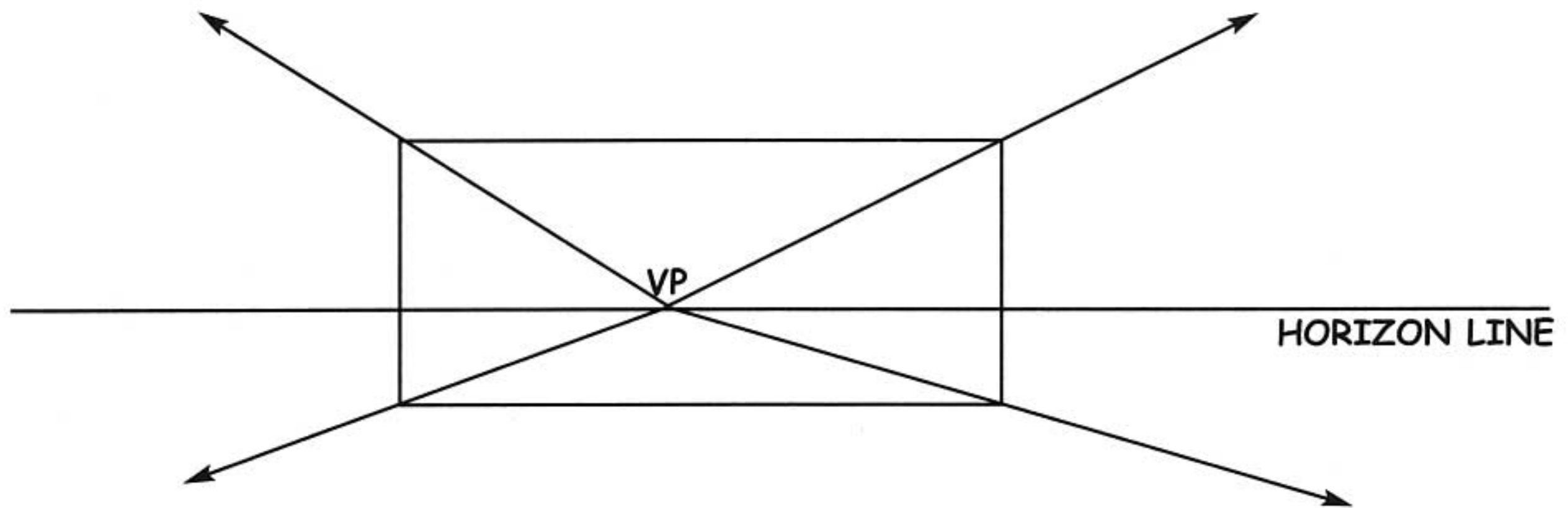
To this day, I am glad that Glenn walked over and made one suggestion to help my drawing. The problem was the accuracy of my grid. He demonstrated a simple trick to get accurate grid lines by adding a diagonal measuring line to a diagonal vanishing point, also known as diagonal measuring point, on the horizon line. Sounded simple enough to work, and it did.

Below is a completed visual of the diagonal vanishing point used to create an accurate grid.

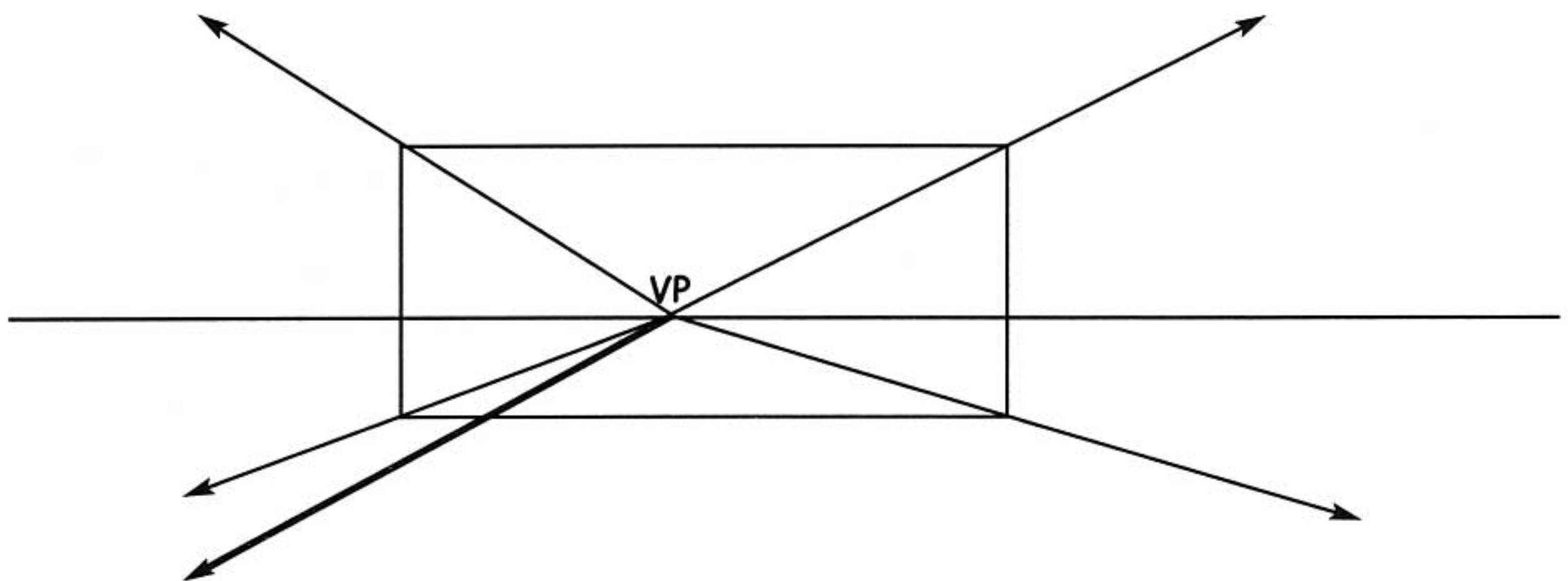


Use this example to create your own diagonal measuring line and accurate perspective grid.

1. Start by drawing a horizon line with a slightly off centred vanishing point.
2. Similar to the section on one point perspective, create an interior of a box that will be used as a room.

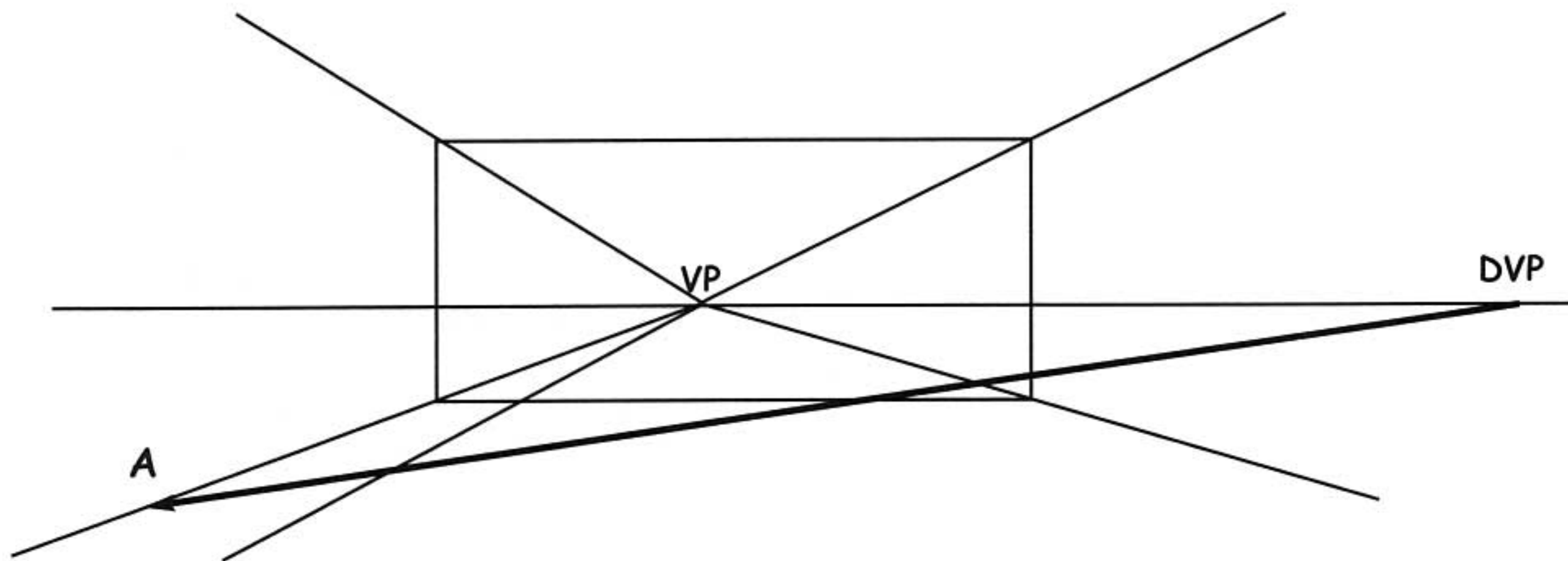


3. Starting on the left side draw a floor line back to the vanishing point. These two lines on the bottom will serve as the spacing guide for the remainder of the floor grid.

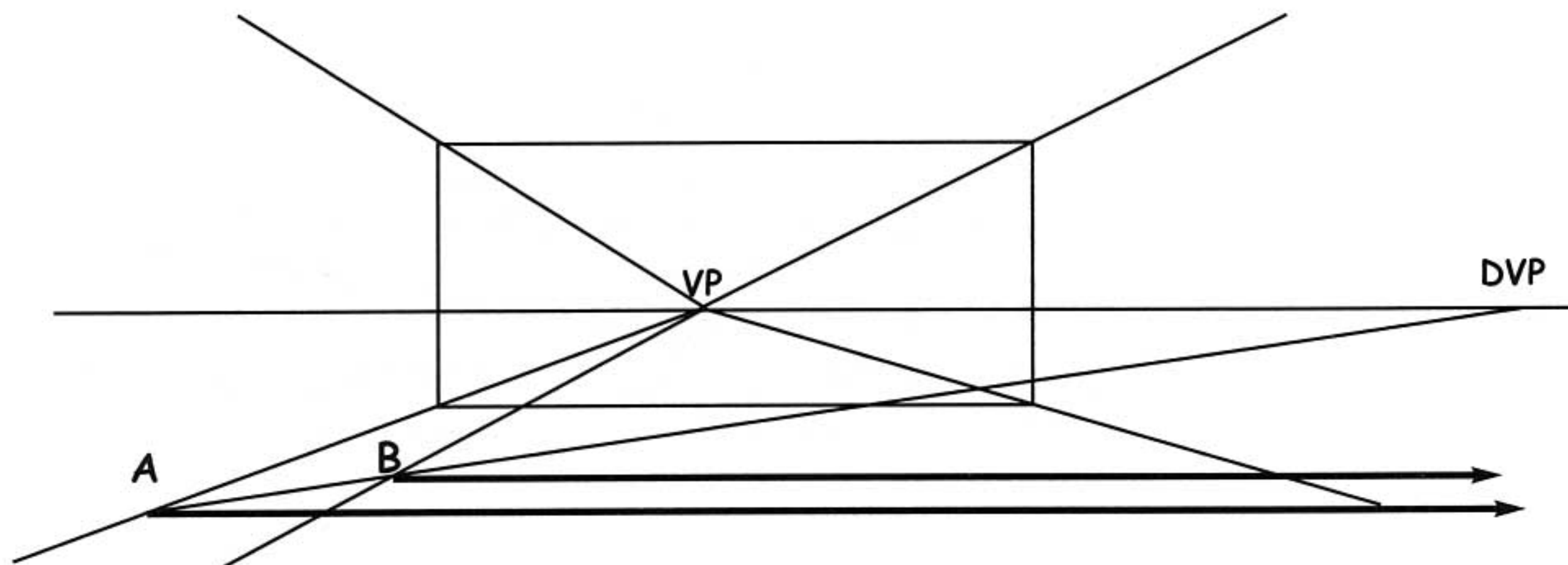




4. Choose a point on the horizon line well outside the box area. Label this point as **DVP** for **Diagonal Vanishing Point**. Draw a line from the **DVP** to the box corner point **A** as shown below.

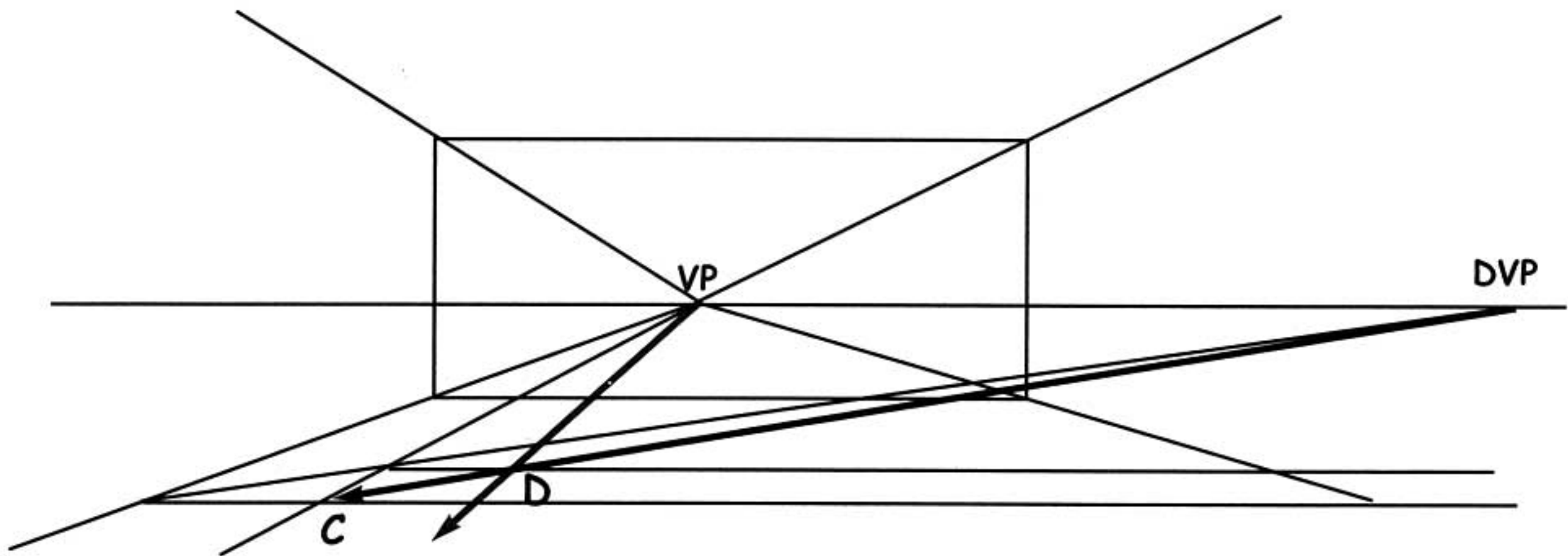


5. Since this is a simple one-point perspective box, draw two parallel lines from corner point **A** and from point **B** across the page.

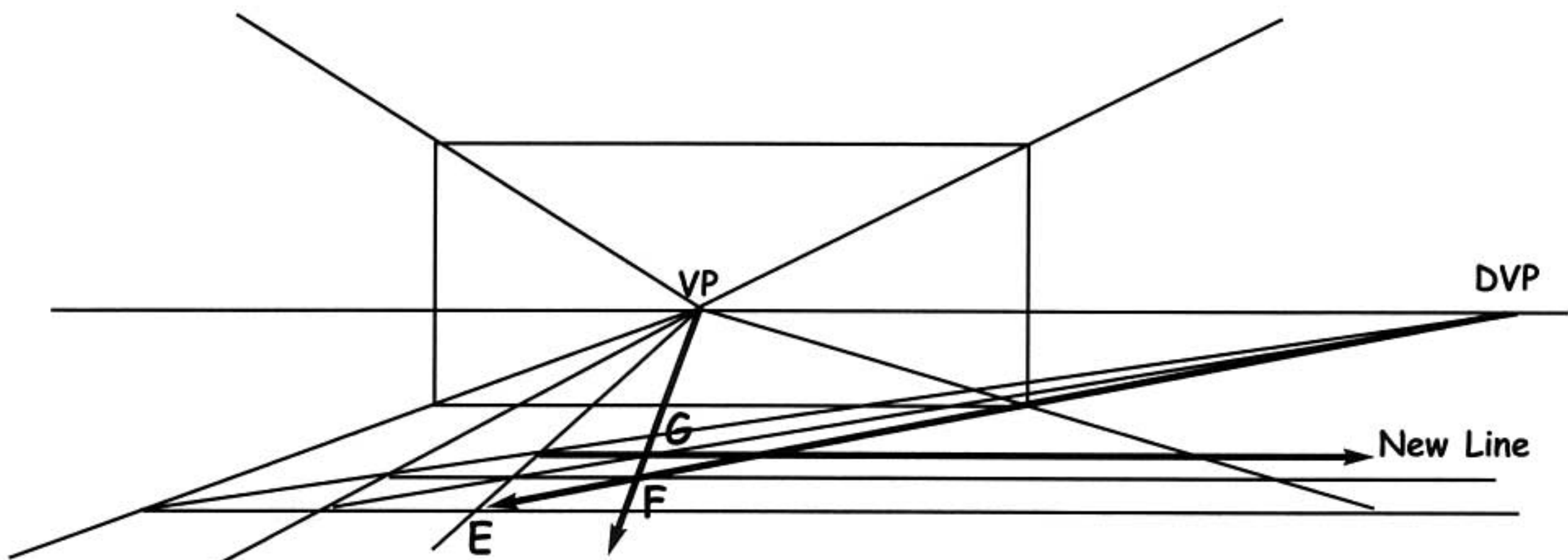


From this preliminary skeleton, we can create the remainder of the floor grid by repeating steps 4 and 5 across the closest line to us, as shown in the next step.

6. Draw a line from the **DVP** to the corner point **C** as shown below. When this line was drawn, a new intersection of lines was created at point **D**. From the **VP** draw to and past point **D** as shown below.



7. Continue the same process with points **E** and **F**. This time we will add a new horizontal line that is parallel and closer to the horizon line using point **G** as our starting point.



8. Repeat this process of adding diagonal measuring lines from the **DVP** to the corner of the newest perspective line. Use the intersection points of both of these lines to create the distant horizontal grid lines.

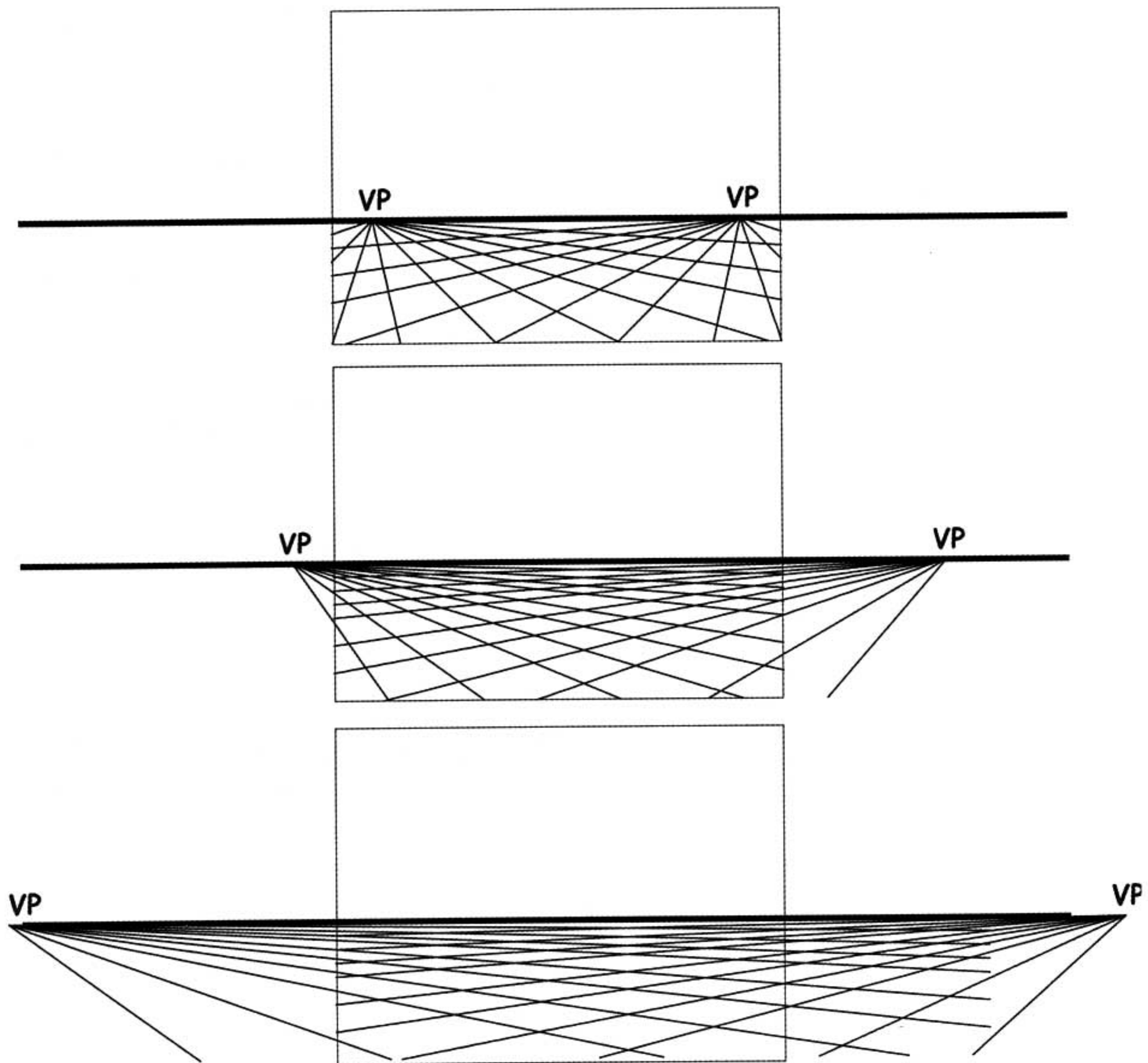
When completed, you will have an accurate grid.

As your confidence to draw an accurate grid strengthens, the need to draw these extra lines is removed.



As with one-point perspective grid, the two-point grid defines what the floor perspective and surface are for the placement of characters and elements. The perspective grid is the stage. How it is defined using a two-point perspective grid will alter the animation after layout.

Below are three examples of two point perspective grids. Each has vanishing points at different distance to each other; close on the page, both just off the page and both well off the page. Note the end result of the perspective grid for each and how it might impact a character walking on it.



Perspective grids are extremely important for constructing layout artwork. Practice, practice and practice drawing them again and again.

## **EXERCISES:** CHAPTER 4 Staging and Perspective Grids

Try this exercise which combines most elements from this chapter Staging and Perspective Grids. Read thoroughly before starting and determine exactly what is asked for in this exercise.

The focus of this assignment requires more planning than drawing to complete the task. Use several 8 1/2" by 11" sheets of paper, a blue and a red pencil as needed for this exercise.

1. Consider the look and scope of a typical mini golf course. There are typically eighteen different obstacle holes with a windmill, a swinging pole and a volcano amongst other objects. At the front of the first hole is a large overhead sign that reads, "Start Here". Along the entire course are bushes and the occasional tree. There are two characters standing at the first hole.

Design an overhead stage floor plan of the mini golf course using simple shapes and show where the characters are standing.

Create an overhead axis line of where the characters are and search out where you think the best camera shots and angles would be. Draw the cameras on the 180-degree axis arc.

Compose one scene from the above plotted camera angle.

Remember that every artist considers the artwork they do as the best of the best. Once we understand that someone else knows more than we do, why not ask him or her for their advice? Only then will our artwork be great.

**What do you think?**



THUMBNAIL

## THUMBNAIL

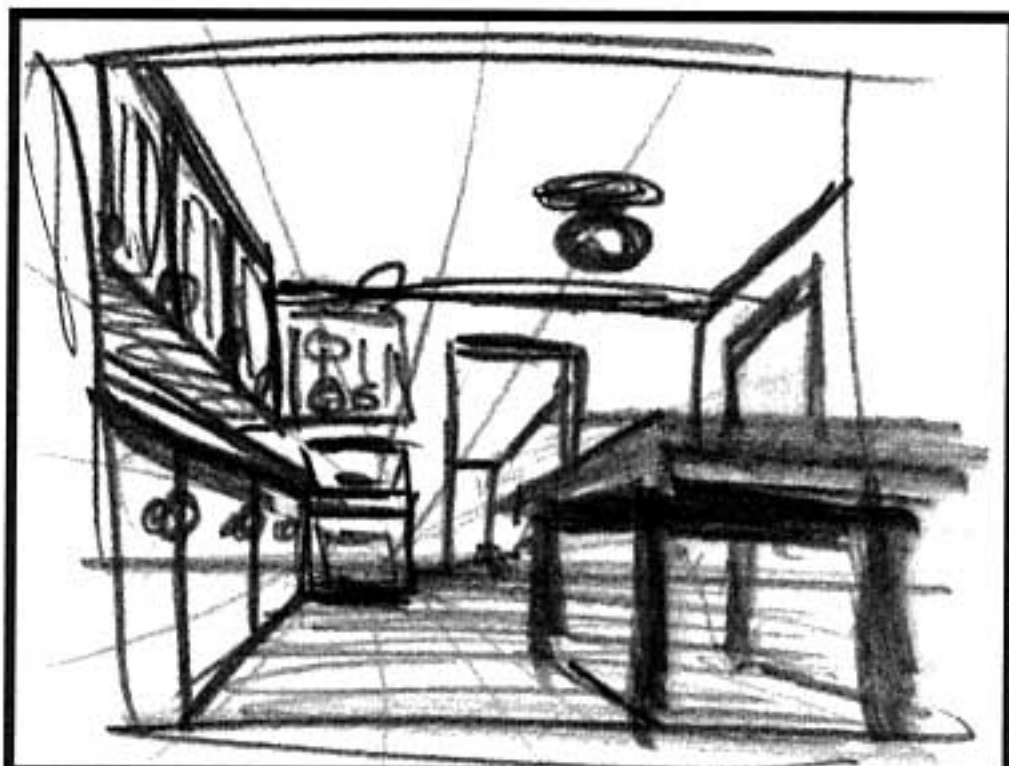
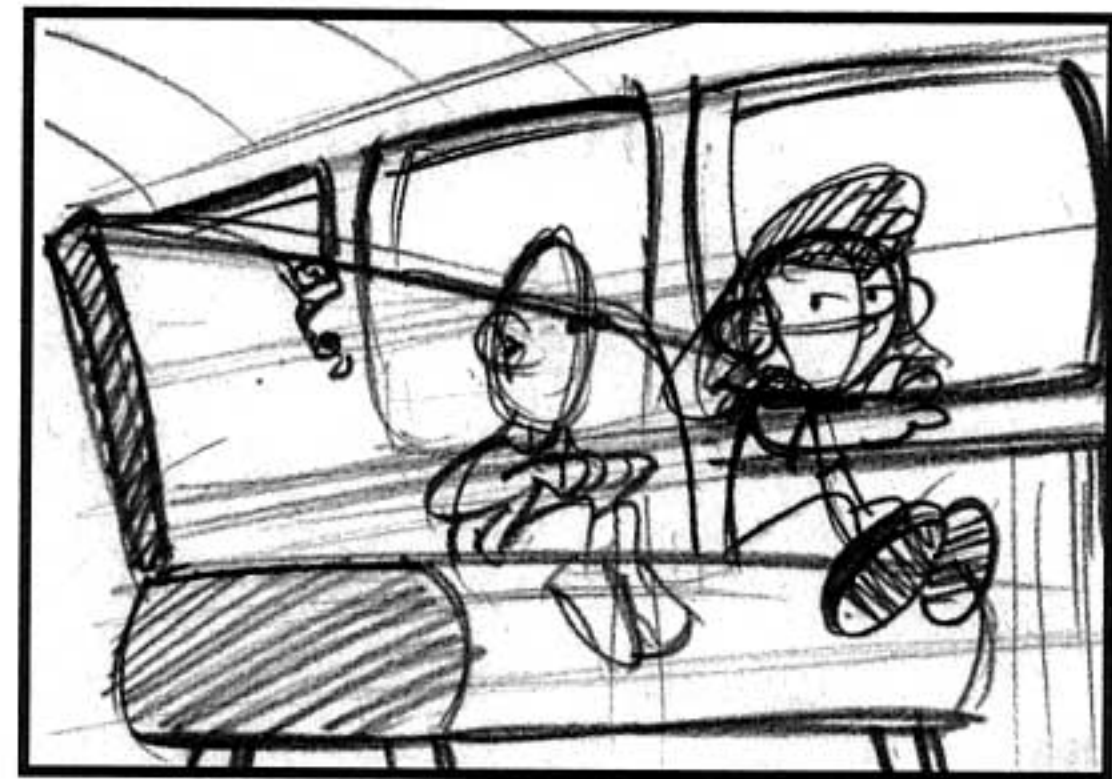
Whenever I introduce the concept of creating thumbnail drawings to explore the direction of the background, I have at least one student ask why they must be the size of your thumbnails. They could be, but usually are not. They range in size from a two-inch to a six-inch box.

The size of the thumbnail is really secondary to the thought that must be put into the drawing and whether this thumbnail represents the best staging for this scene. For the most part, thumbnail drawings are created quickly with limited detail to show staging, composition, perspective and the required element placements. My then, five year old daughter Michelle created this sketch example. A thumbnail should be as spontaneous as this artwork.



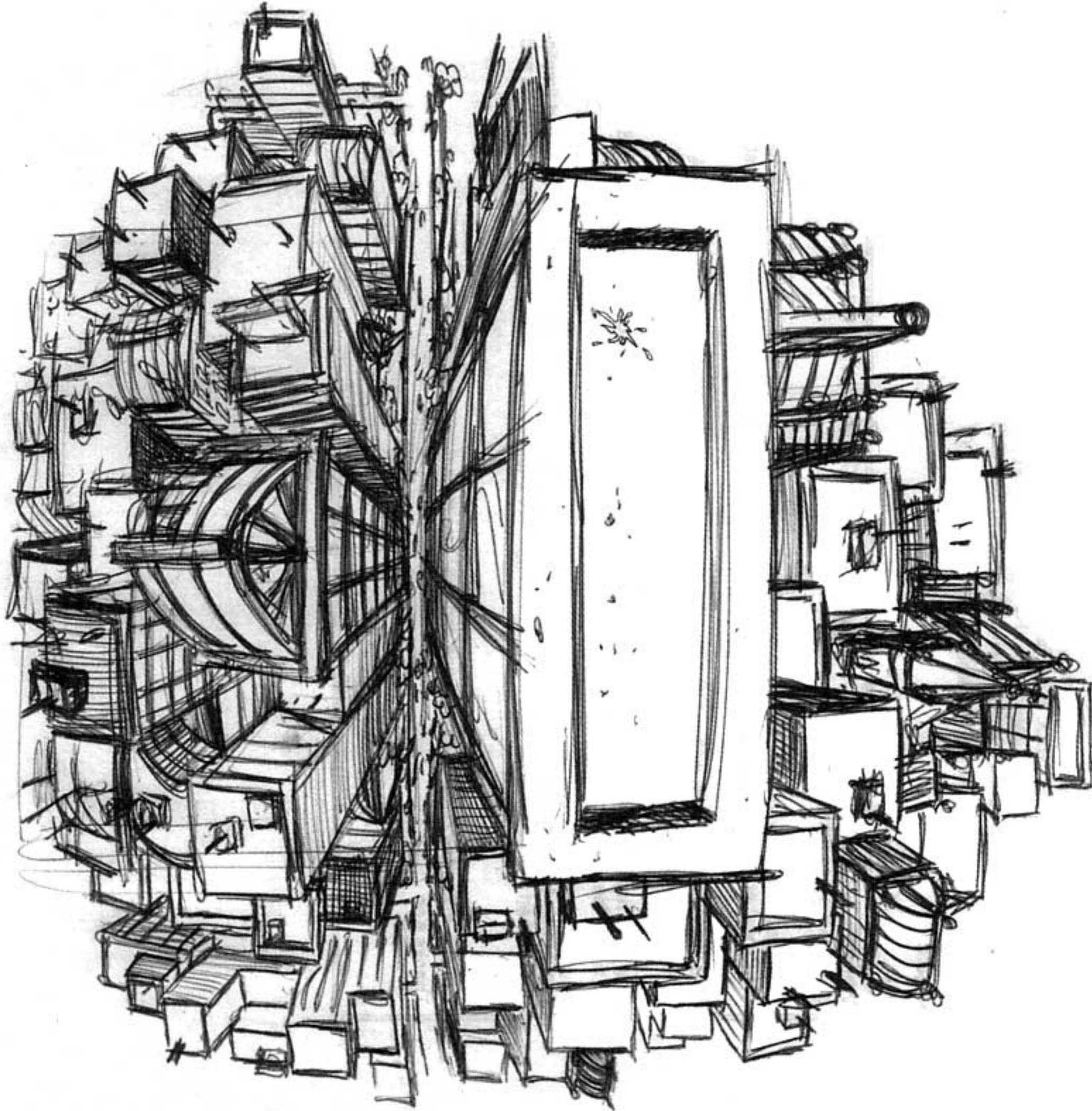
I cannot over stress the importance of creating thumbnail sketches in layout and all other conceptual stages of animation. Why rush into a finished version of the background that maybe, at best, mediocre, when a few minutes of extra planning can produce dynamic results?

Below, note the use of composition (why things are placed), staging (characters freedom to move), and perspective (initial planning that will later be refined).





Thumbnail drawings do not have to be created specifically for animation or layout. They are ideas of how environments look to you. Most concepts and ideas are created from daily drawing in a sketchbook, on a napkin, or even production meeting handouts. Whenever an idea arrives it is best to sketch it out then define it more at another time.

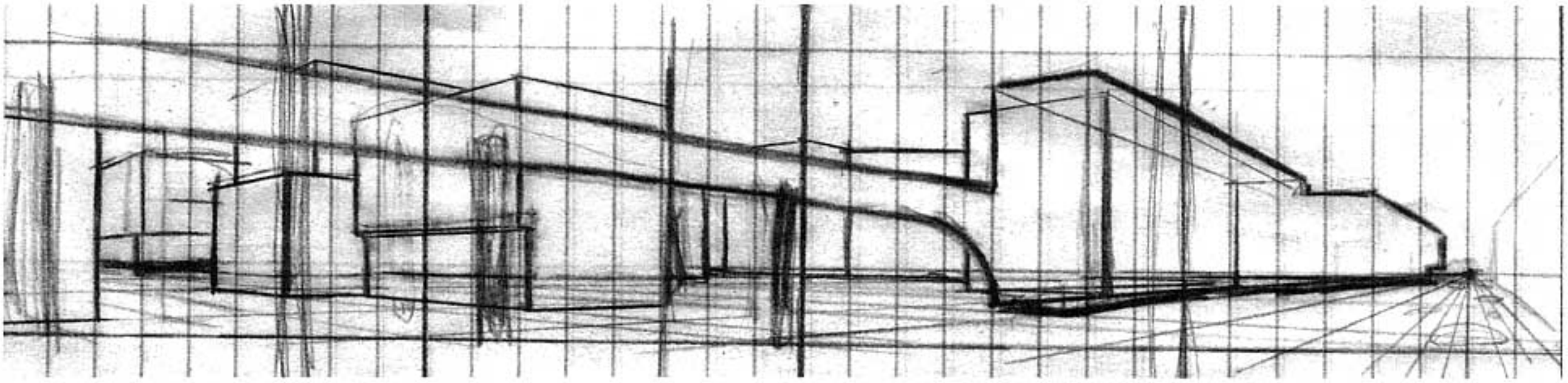


During a very long staff meeting I shamelessly created the above elaborate three-point city sketch. I was pleased with the overall composition of this pen sketch and how it forces your eyes into the environment so much so that I started adding extraneous items such as dots for cars, brick texture and even a potty-humour extra large bird dropping on the roof. Like most sketches it is a preliminary drawing without accurate perspective. (By the way, I strongly do not recommend drawing during meetings unless it will keep you awake.)

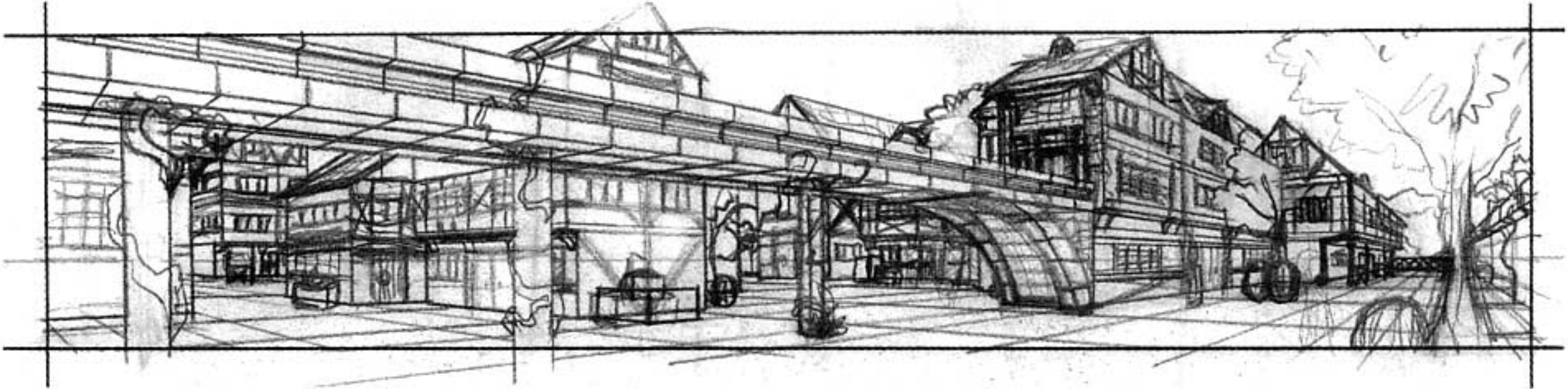
On the next page are a few more examples of the thumbnail sketches developed by my animation layout students.



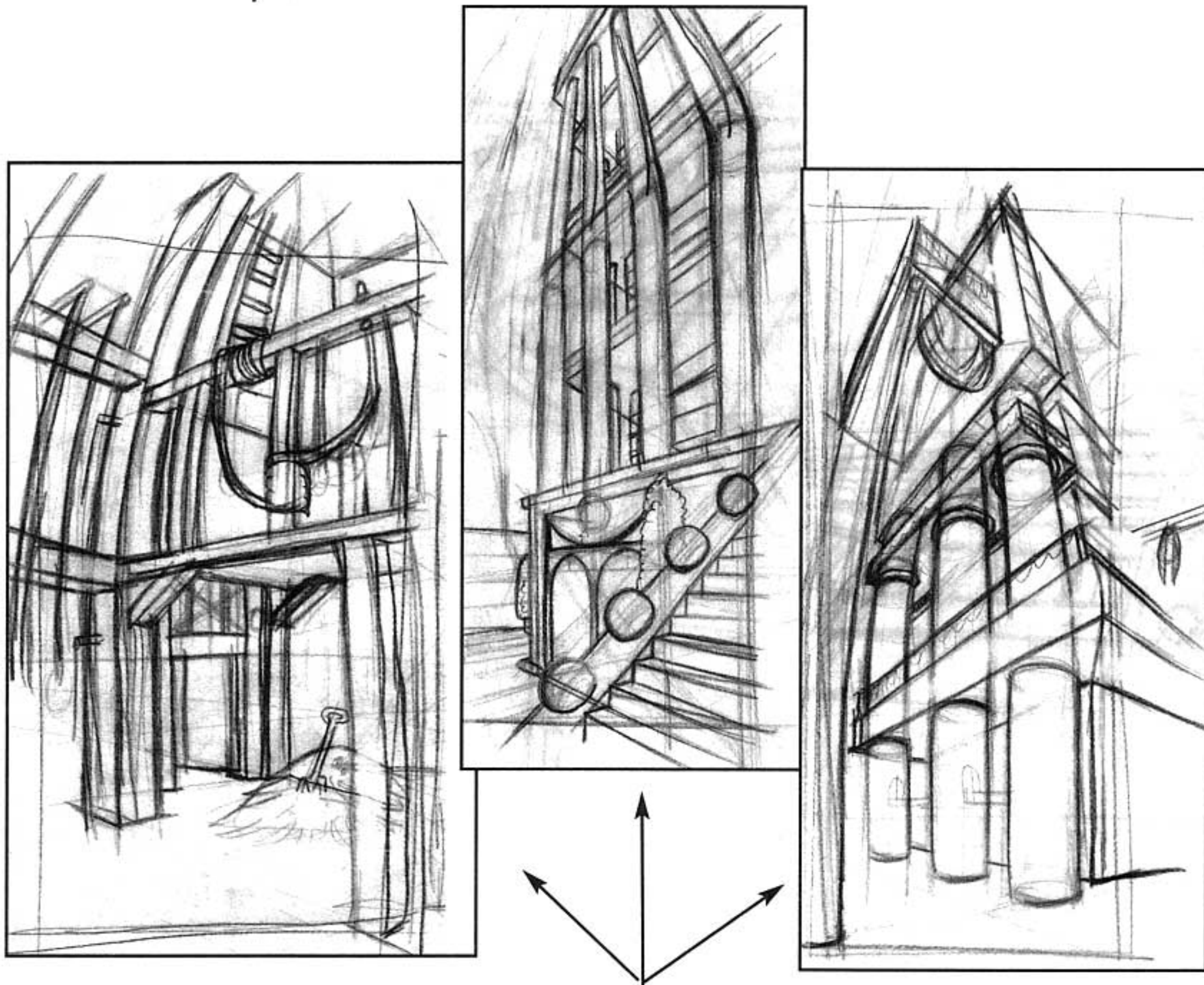
More of thumbnail sketches.



This above and below rough was created by my year one layout student, Erick Levesque.



Incorporate patterns within your sketches. Try placing elements in groups of threes and utilizing repeat shapes. When necessary, give sufficient room for characters to easily move.



These three thumbnails sketches are from my year one layout student, Jacques Daigle.



## **EXERCISES:** CHAPTER 5 Thumbnails

For the thumbnail exercises I suggest using several 8 1/2" by 11" sheets of paper or a sketchbook and a black pencil.

**TIME YOURSELF** or get a friend to time you as you draw. There are three rounds to this exercise; each one is longer in duration. The purpose of this assignment is to draw the first thing that comes to your mind and with as little detail as possible. The timed aspect forces you to concentrate on only the basic shapes of the elements and not extraneous details. This is the basis of a thumbnail: explain what the environment looks like in an easily read and understood manner.

**PART ONE:** Write a list of thirty different scenes or locations such as western saloon, a city downtown, a zoo or the interior of a church. Give this list to your friend, or place it on the table beside you.

**PART TWO:** Ten second sketches for a total of two minutes. As you read or hear the style of location to be drawn, draw the first thing that comes to your mind in its simplest shapes. Repeat this until the time limit is up. You have just created twelve thumbnail sketches.

**PART THREE:** Thirty second sketches for five minutes. Similar to the above, listen or read the name of the next environment and draw the first thing that comes to your mind. Start with the basic shapes then add limited detail to suit the drawing and time limit.

By repeating this exercise over and over you will become accustomed to breaking elements down to their basic shapes and creating dynamic thumbnail sketches.





## ELEMENT PLACEMENT

## ELEMENT PLACEMENT

As explained throughout this book, the composition, or element placement, is very important to the functionality of any scene.

By placing background elements in various positions the character in front can become lost or constricted for movement.



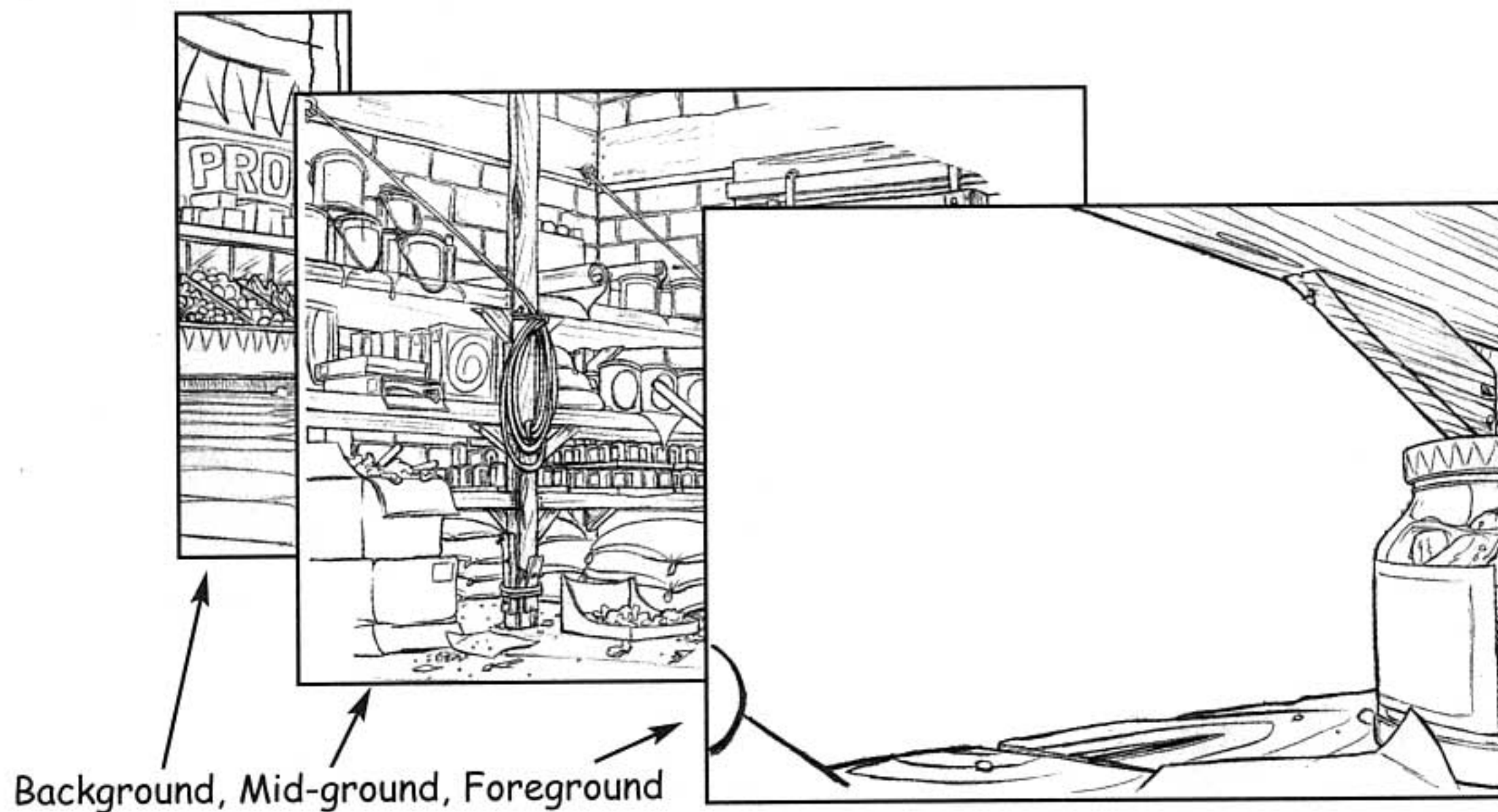
Similar problems occur when placing elements in front of the character.



To further define the responsibilities of the layout artist, the creation of an atmosphere and environment that a character could freely move and interact within is important. Each project will yield new and exciting solutions but understand that by using a strong foreground, midground and distant elements does not guarantee a successful drawing.

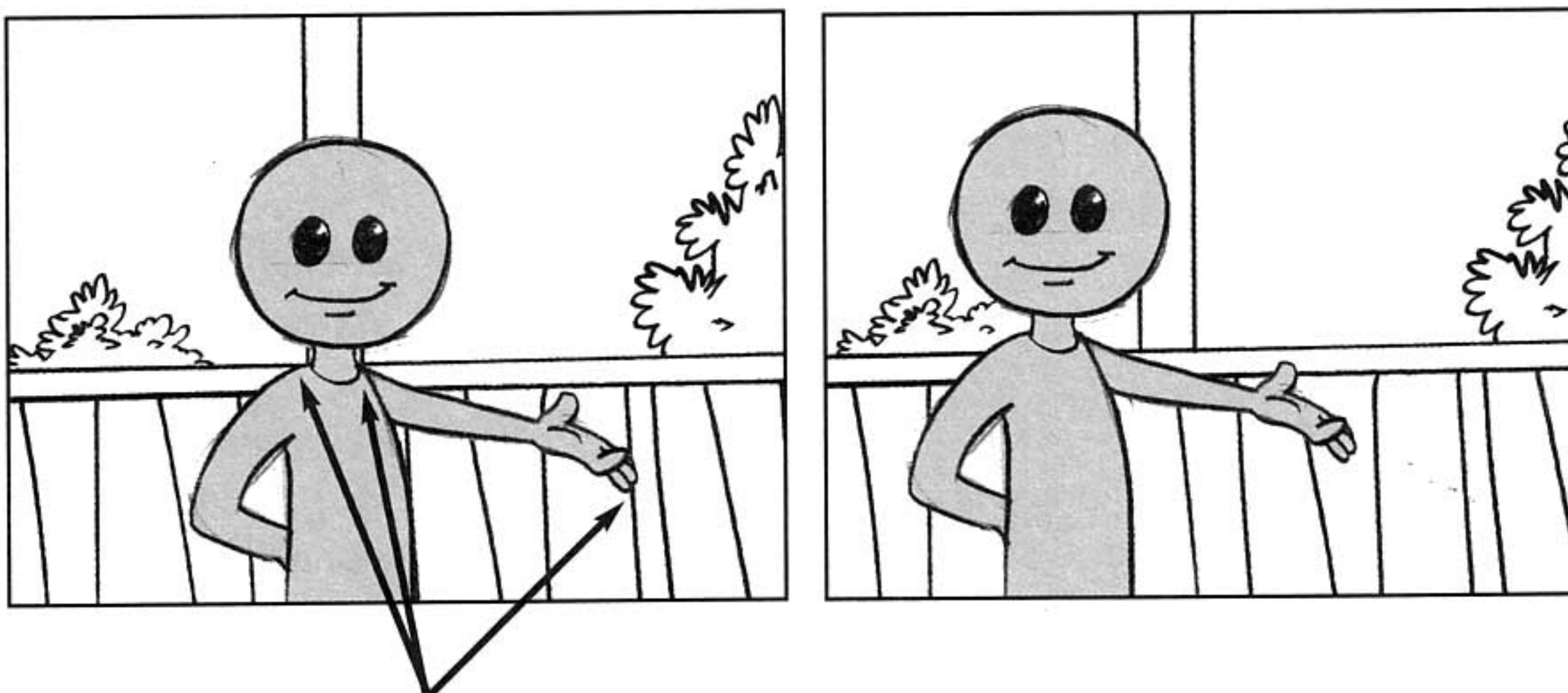


**Foreground:** An element that is up close and usually partially illustrated with the remainder of the object situated off the page. The foreground is used in conjunction with the mid-ground and background areas of an environment.



**Mid-Ground:** In conjunction with the foreground and background areas of an environment, the mid-ground is the main acting stage for the animation to take place. This area must have environmental objects drawn in such a way that they do not interfere with the animation.

An example is taking a picture of a person outside, near a flagpole. If you mistakenly line up the person and the flagpole, the picture will show a person that has a flagpole growing out of the top of his head. Tangential growth is also a concern; lines that run-on and intersect to form one line, on the background and character. By moving the composition the picture becomes clear from obstruction.



Poor composition - Tangential growth

Better composition - Room to act



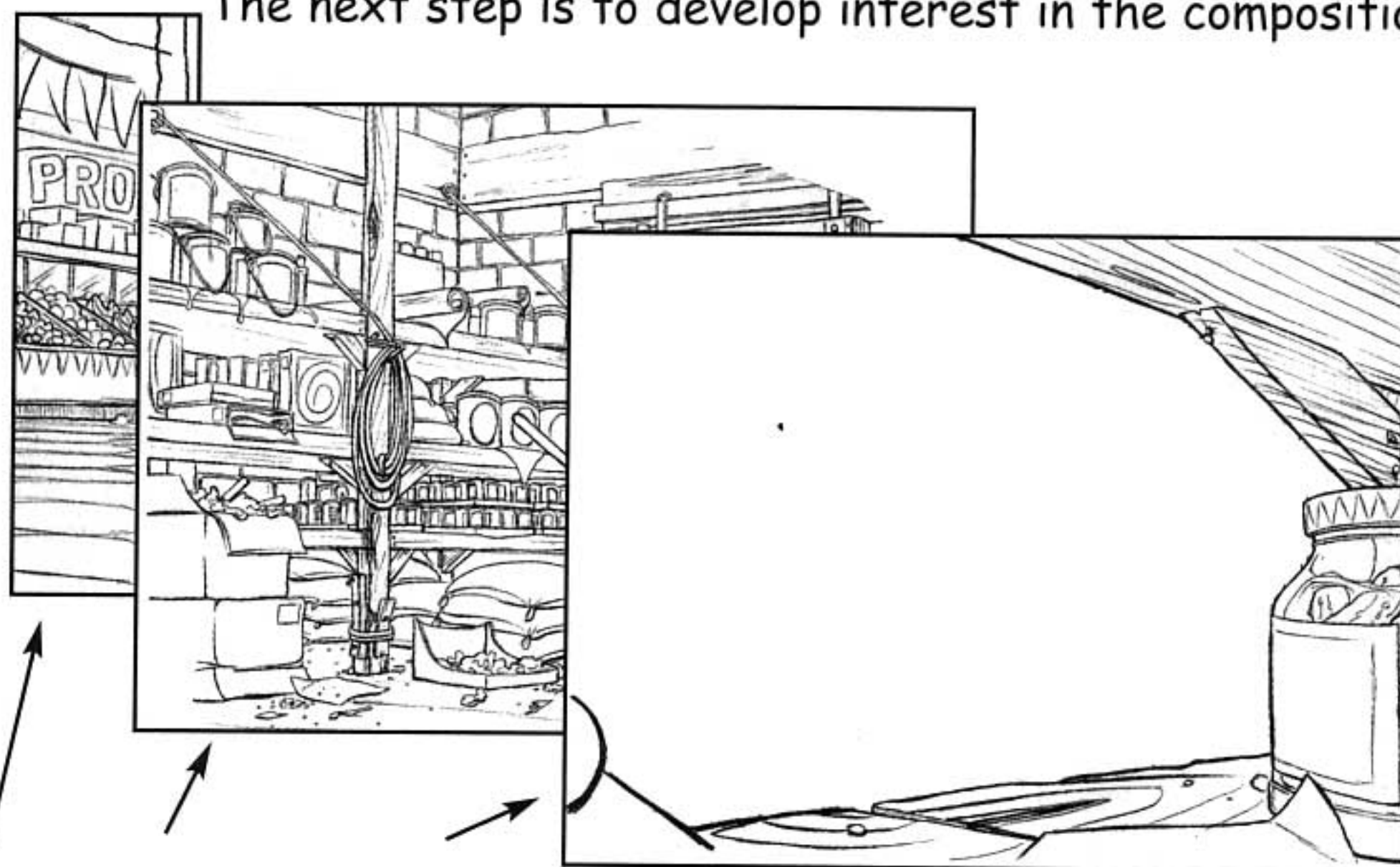
**Background (BG) or Distant:** In conjunction with the foreground and midground areas of an environment, the background is the furthest portion of the environment, such as mountains, trees, clouds or stars in space. Generally there is very little detail drawn in this area. The purpose of the distant element is to confirm what the midground has described as the environment.



Interior of a grocery storeroom.

By combining the foreground, midground and distant levels, a strong visual is created. Using these elements and perspective together creates depth. How the elements are arranged is just as important as what is arranged within a scene.

The next step is to develop interest in the composition.

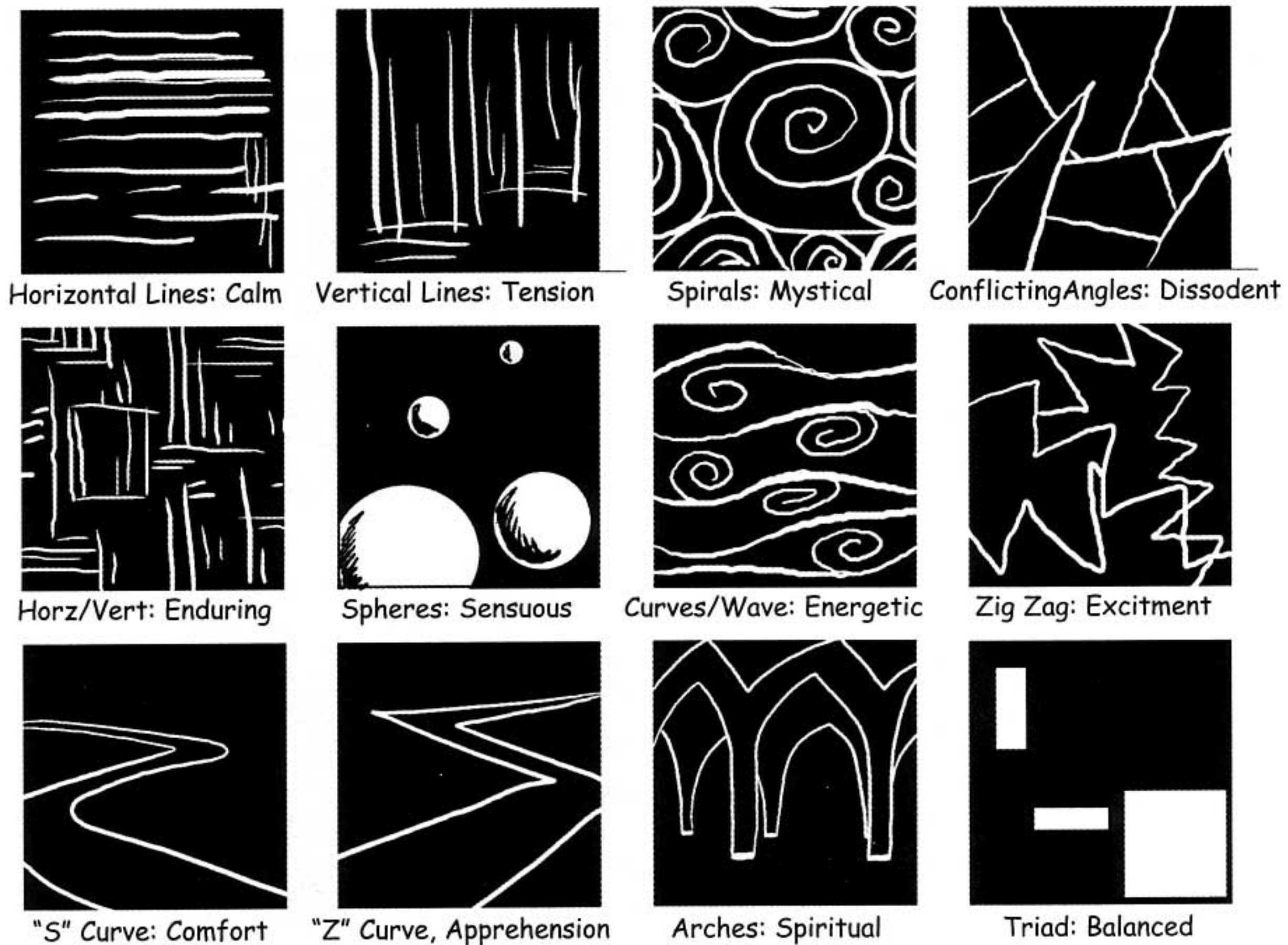


Background, Mid-ground, Foreground



It is sometimes frustrating for a student or at times a seasoned layout artist, to become consumed by the elements of a drawing and create a piece that looks less than acceptable. WHY? When designing an environment add a simple pattern. Patterns that lead the eye throughout the composition create a dynamic drawing. Without it, the drawing is weak.

Each pattern shown here is only a fraction of what can be used. Consider what is presented, as the foundation to a strong composition.



I have seen many different versions of these patterns from studios such as Disney and Nelvana, to studies of the great Masters of design and painting. The concept of pattern is tried, tested and proven to be an effective method of embedding **eye candy** for the viewer.

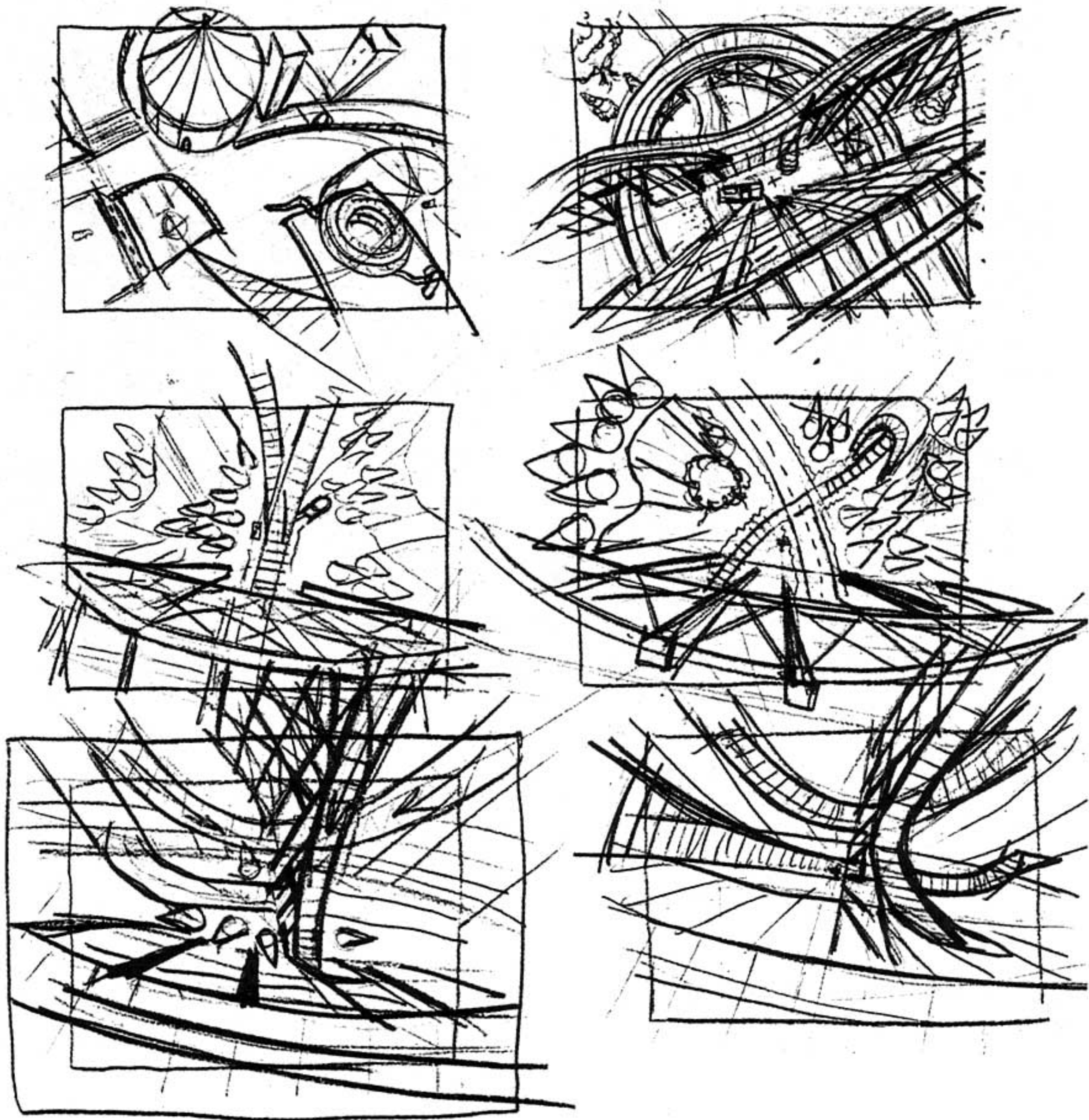
**NOTE:** Eye candy is a term often used to describe a drawing that controls and creates interest for the person viewing a drawing. Open doors, dark corners, absence of light and winding stairways in a composition direct the viewer's eye to keep looking within the drawing. This creates Eye Candy.



## STUDENT WORK

The reason behind presenting student work in this book came from a decision I made when I put the word "Student" in the title. I believe that it is one thing to read about what a professional has to say on any particular topic, but show me an example of the challenges that one of my peers had, and I will learn faster.

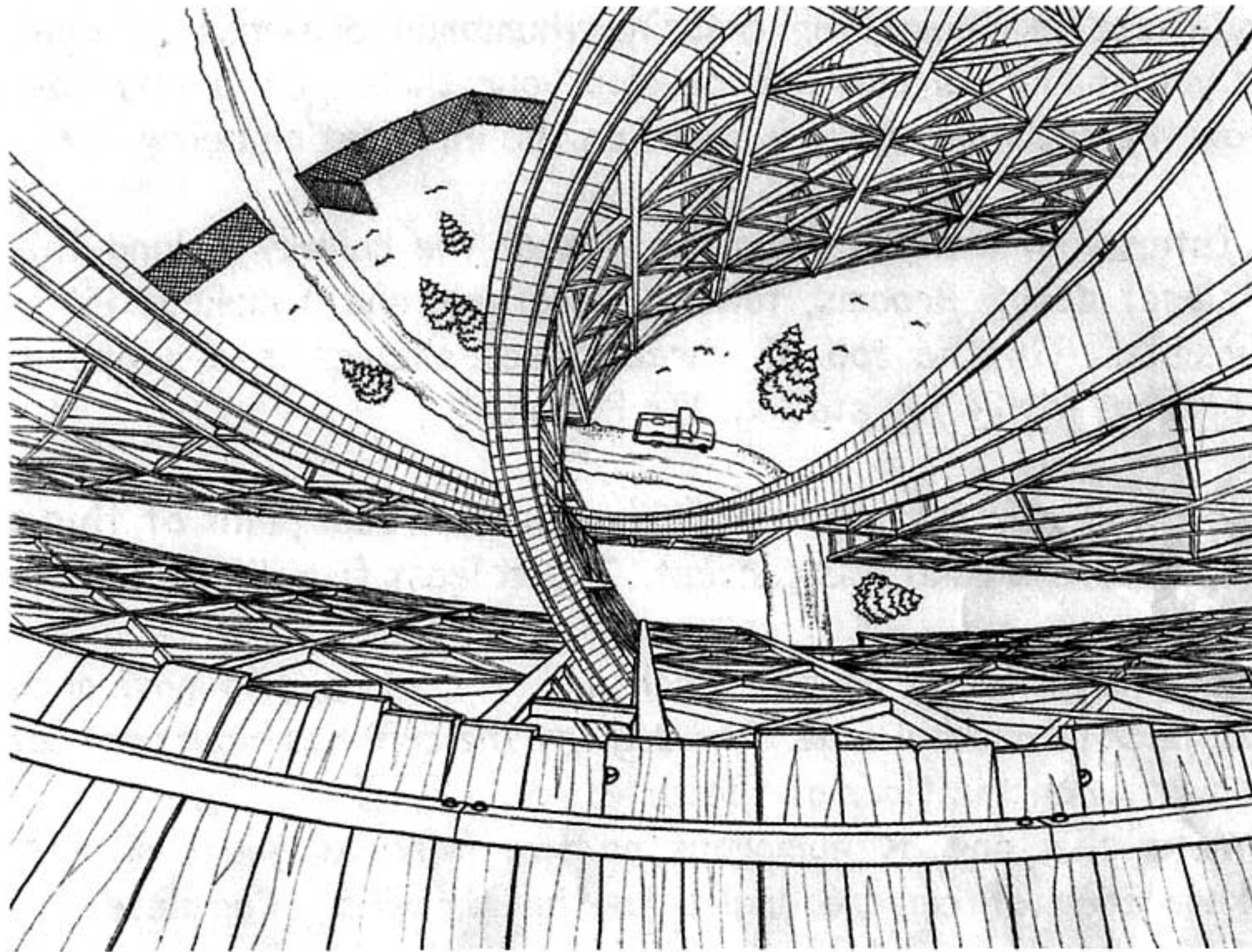
Below are examples supplied by one of my former background layout students, Brian Tolin. The task he was presented was to create a down shot using a third vanishing point of any venue to display depth and pattern.



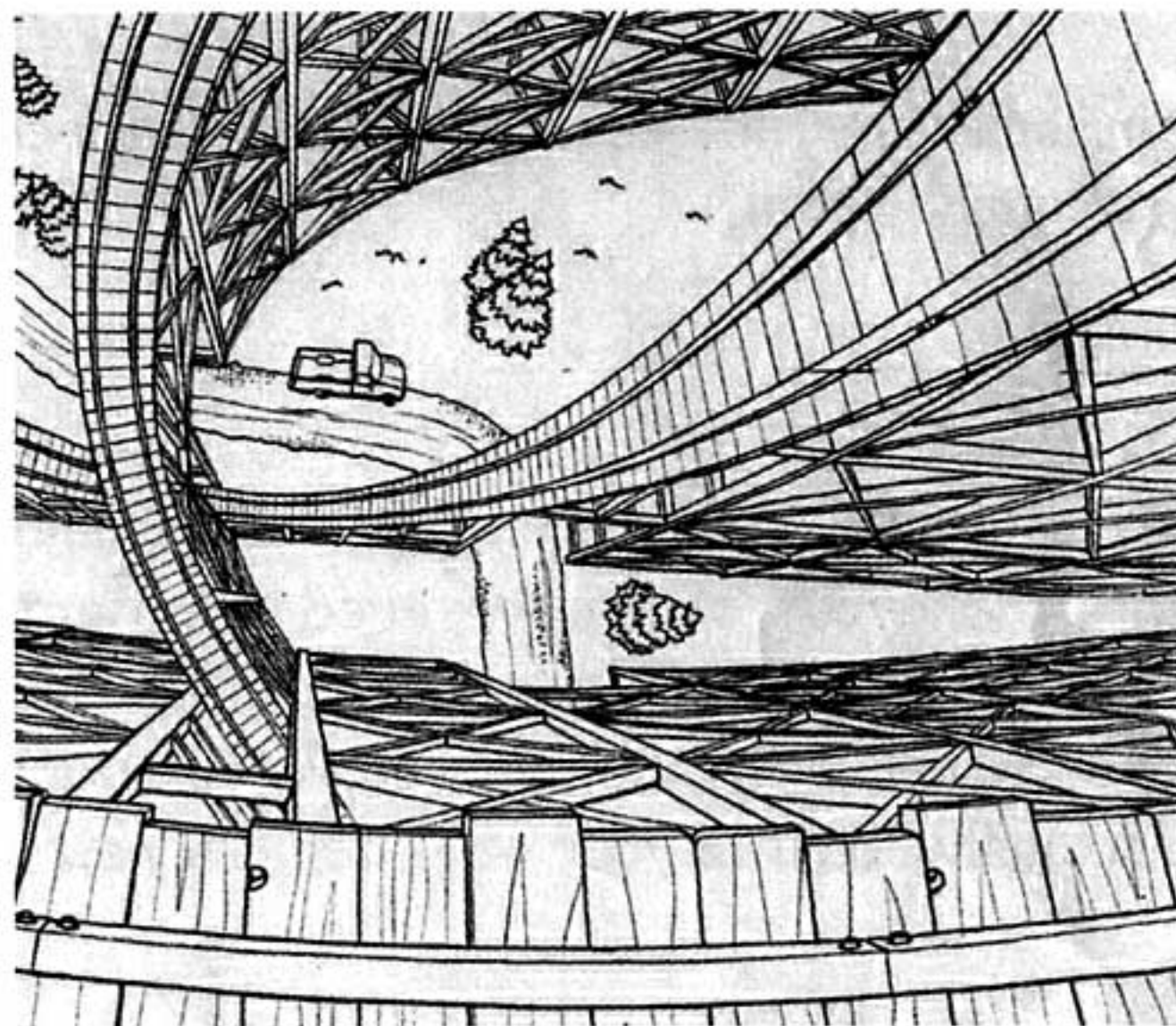
Notice the thought process Brian went through in his developmental thumbnail drawings. Each sketch is based on one main focal point.



His completed composition was derived from elements he extracted from each of the previous thumbnail sketches.



Although the end product was well constructed, the viewer's eye tends to travel to the top left hand corner of the screen where an open gate and path flow off the page. Breaking the picture plane is a useful tool to create interest but here it is distracting.



I have manipulated his drawing to adjust the focus to the truck.

NOTE: All compositional experimentation must be done during the thumbnail stage of creation. MINOR refinement can be completed during the drawing of the full sized blue rough artwork.



## **EXERCISES:** CHAPTER 6 Element Placement

Try these exercises for creating thumbnail drawings. Below are four exercises you should complete to develop your skills. On a separate sheet of paper, draw the required artwork based on the information below.

1. Interior of a closet from the view of the hallway looking into the open closet door. Brooms, towels, hairdryer, and a makeup kit are clearly visible. On the top of three closet shelves is a wrapped birthday present with a tag stating, "To Pumpkin".

Before you start to draw ask, "**What is the focal point of this drawing?**" Build your patterns around this concept. Try at least five different compositions.

2. Exterior of a zoo cage at lunchtime. A cart used to move animal food is outside of a metal cage. The cage by the cart has been bent open. There is straw on the floor of the cage.

Make this one as humorous or terrifying as you wish. Apply your knowledge of camera angles to this drawing. Complete at least ten different thumbnail drawings.

3. Opening exterior scene of a winter's night. There are pine trees covered with snow. The ground is also blanketed with snow except for a path made by a horse and sleigh that leads up to an old 1930's style Canadian farmhouse. The moon is in the sky.

Experiment with something not covered to date. Block out the elements using only shapes with minimal detail.

### **NOTE:**

Design your background (**BG**) with the character in mind. If the character cannot physically fit into the layout, or is interfered by objects within the layout, **CHANGE IT!** Thoroughly plan out your scene in the thumbnails to remove situations like these. As you complete the blue roughs for the full size layouts and poses, continue to consciously observe your work for any new problems.



## SUPPORT MATERIAL:

Storyboards  
Prop Sheets  
Character Model  
Pose Sheets  
Location Designs

## SUPPORT MATERIAL:

In this chapter we focus on the support material for layout including storyboards, location designs, character designs, and prop designs. To understand the role of the layout artist and the use of the previously mentioned support material, here is a process of how animation layout gets started.

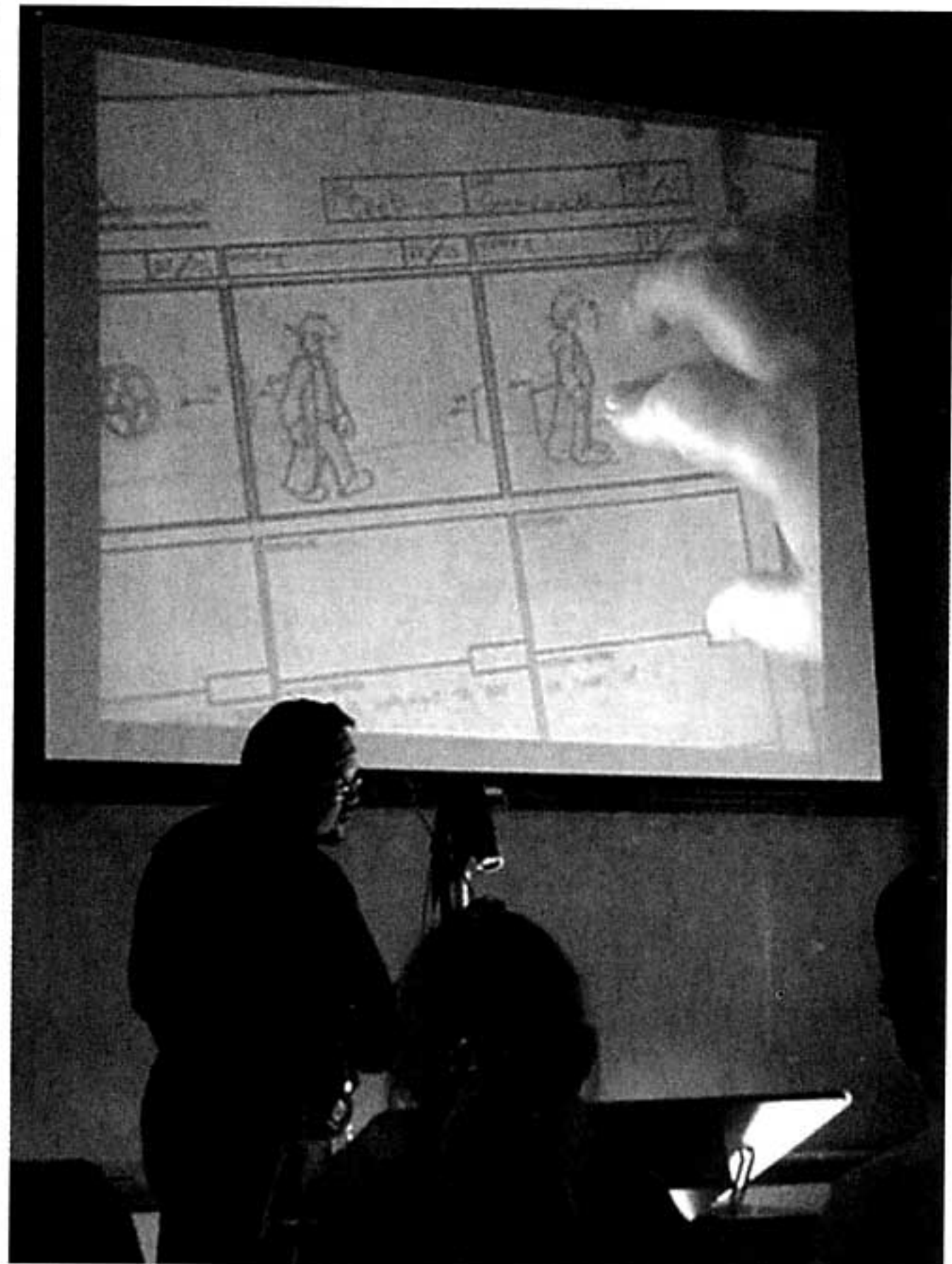
The storyboard is presented to the director, supervisors, animation staff, and occasionally the investors of the production by various methods. Each studio presents the storyboard differently depending on the production type and restraints. One presentation method is to have the storyboard acted out live. The panels are posted on large walls or moveable corkboard panels. As the board creator points to each panel, s/he acts out the dialogue and action. This has many names including storyboard review, board presentation and story pitch session.

Some studios only create a real time video of the storyboard panels. Each panel is filmed for a predetermined amount of time and then combined with the rough audio track. This is called a leica reel. All studios use this at some point in the animation production.

A method I prefer, is a combination of acting out and overhead projection. Animation students project their material on a large screen as they act out each panel, (as seen in this picture). This allows all students to clearly see the storyboard, without interference, or having to strain to see a corkboard presentation.

Once the director approves a storyboard, the next step varies from studio to studio. For television animation, props and characters are created before the storyboard is started. Ideally most second or third season television shows that have established characters, locations, special effects and prop designs need only small amounts of new material created for each completed storyboard.

After the design department, the support material is then shipped with the storyboard to the layout department to start production.



One of my college students presenting a storyboard in class using a projector.



## What is a storyboard?

A storyboard is much like a very detailed comic book. Storyboards must have clear visuals to explain what the scene, or even entire board is about. Many studios ensure there are no visual questions by having the storyboard artist take the drawings to finished clean drawings.

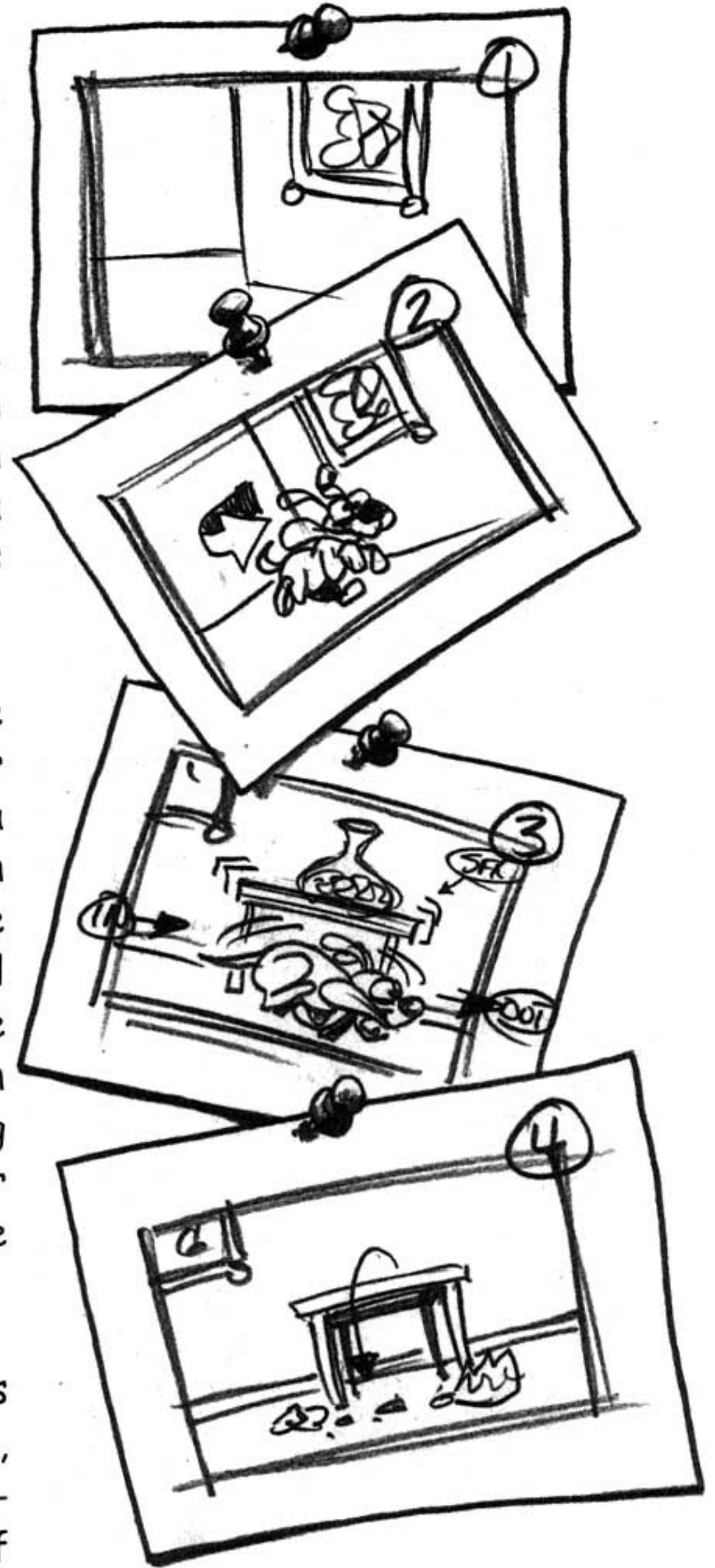
In fact, artists that have a background in either animation layout, or comic book art, create most storyboard work. Motion film, advertising, and especially animation, rely heavily on creating a sequential visual plan of major actions, long before the main production starts.

Storyboard art is created from a written script. This visual interpretation of the story can range in length from twelve panels long in advertising to well over 1500 panels for a twenty two minute animated show. Feature films conservatively start at three thousand panels.

**What determines the length?** The amount of action in the sequence does. Consider a small sequence where a dog runs around a corner and knocks over a vase that was sitting on a table. The storyboard would contain an image of the room first and have the next panel showing the dog running around the corner. The next panel shows the dog hitting the table with the vase wobbling. The final frame has the dog exiting the scene while the vase falls to shatter on the floor. We need four panels to describe the action.

A sequence where a car chase progresses through a city street, just missing bystanders, then ends in a fiery crash may require up to fifteen or more panels depending on the length of the car chase.

No matter what the sequence is about, the storyboard must clearly show a strong and dynamic visual, coupled with a written explanation as to what is happening in each panel.





## Who uses them? Are they important?"

Everyone from the director, to the layout artist, to the animator, uses the storyboards. **How important is it?** The best way to explain the importance of the storyboard is to explain it the way I was taught by Zach Schwartz and Kaj Pindal.

As a young animation student I remember when these two guest speakers were brought in to teach us storyboarding. To paraphrase Kaj, "By providing a strong storytelling base and pictorial continuity, the viewer will understand and connect with the storyboard. If you have to read what was transpiring in the scene, the visual was wrong and must be replaced."

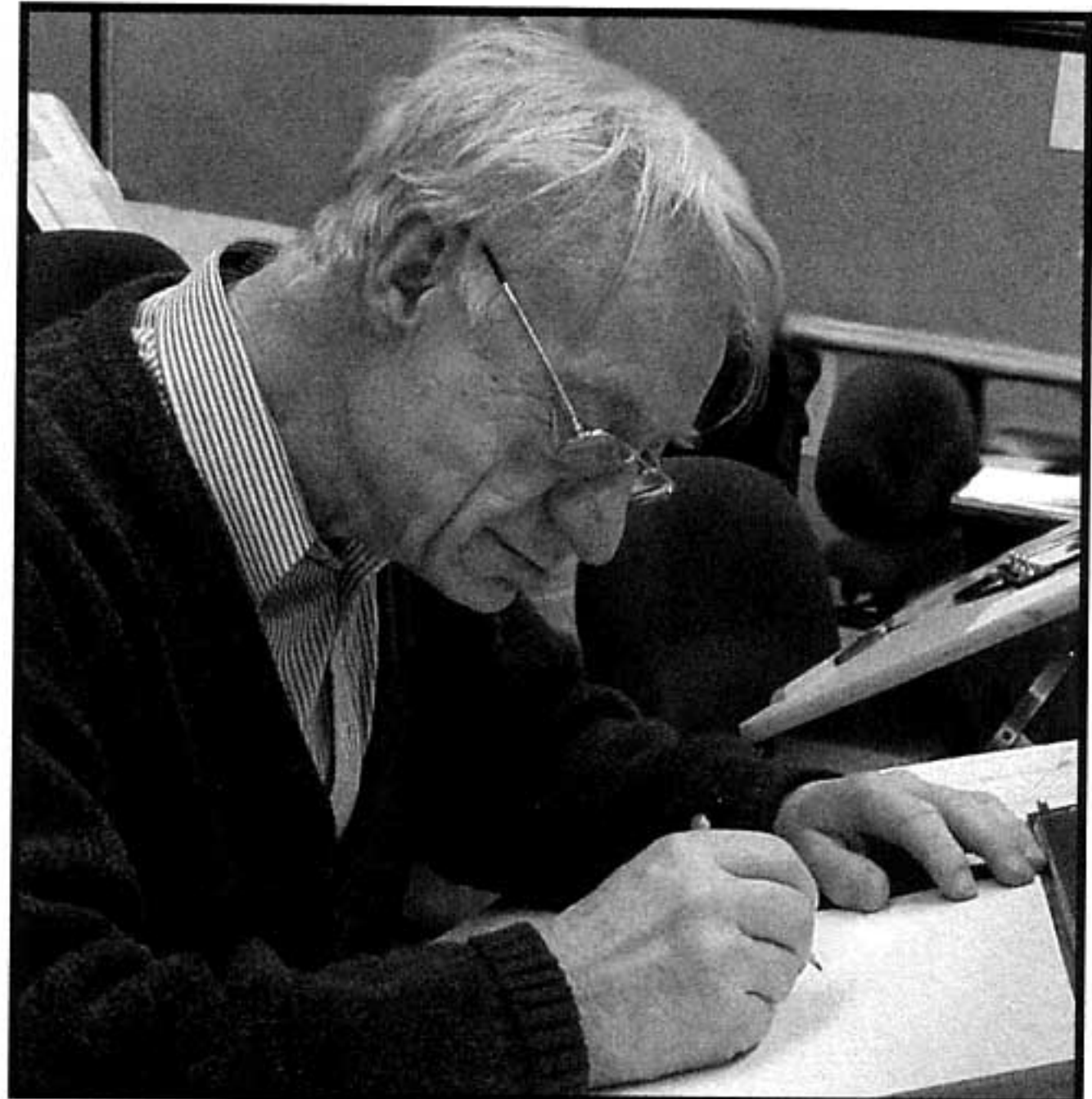
This made sense to me. I adopted this tidbit of information and applied it both to my animation industry work and to my teaching repertoire when I became an instructor.

Years later I met Kaj Pindal at a book signing and asked if he would be a guest speaker at the college where I was teaching. He agreed and spent the better half of two days lecturing, viewing and critiquing the students' work.

Kaj ended the final viewing of student films by articulating the same information he told years before. Then, without missing a beat, he looked at me, then back to the students and said, "I can see both you and your instructor have listened well."

**Kaj Pindal's**, (photo on right), animation career started with the first major Danish animated film in the late 1940's, brilliant commercial work for Richard Williams and directed and animated many animation works while at the NFB, (National Film Board of Canada), such as *Peep and the Big Wide World*.

**Zach Schwartz's**, career spans from the early 1930's as a background painter with Warner Bros., Disney and as one of the founders of the revolutionizing U.P.A. animation studio.



Kaj Pindal May 2002



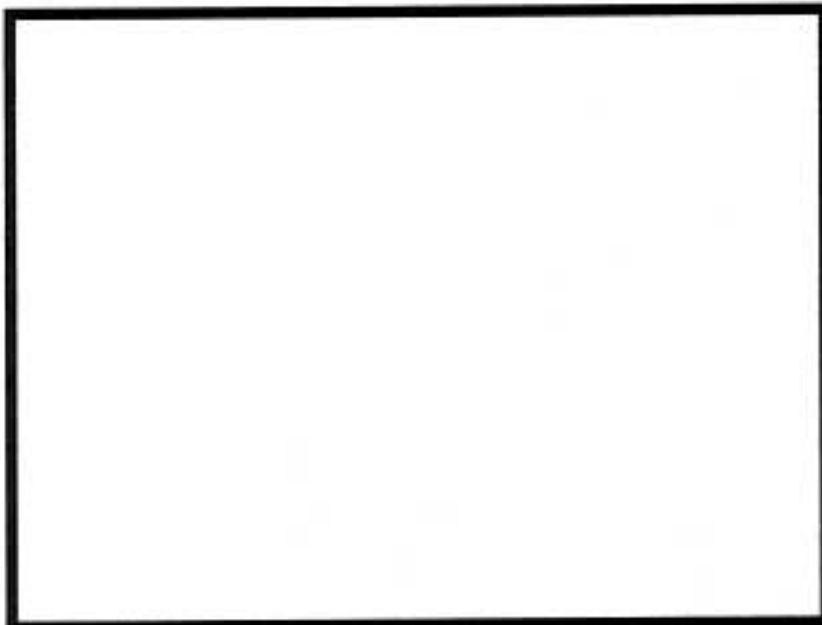
For each action there is an anticipation and reaction. The **staging, framing** and **composition** must allow the action to read visually clearly.

## PLEASE DRAW IN THESE BOXES.



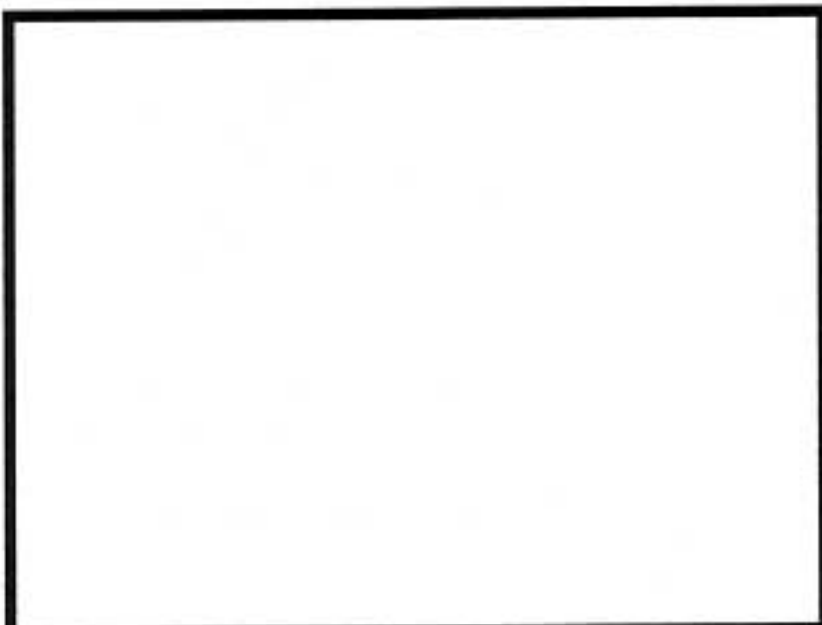
**ANTICIPATION:** Before any action takes place the audience must know and **SHARE** all the feelings and thoughts of the character.

**Draw a character bent over preparing to jump.**



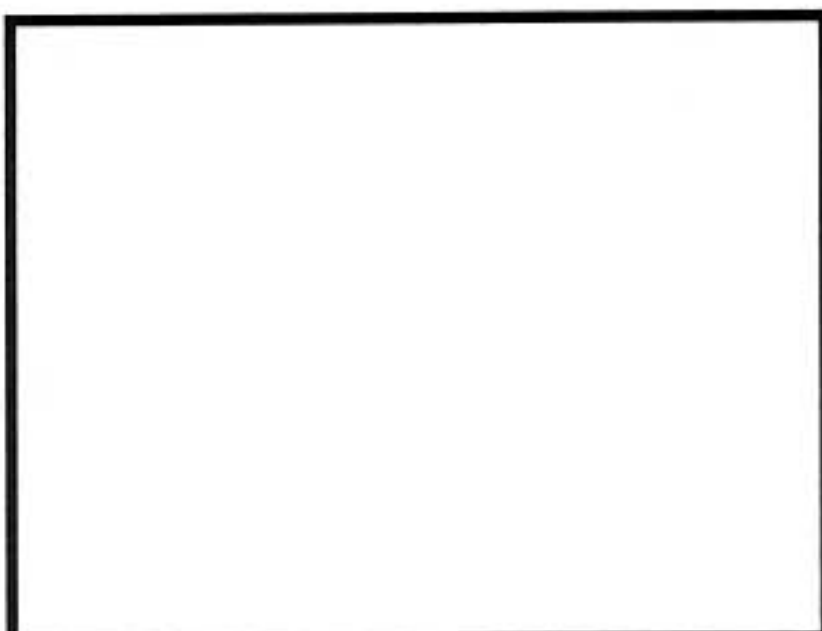
**ACTION:** Provided that the anticipation is believable, any subsequent action becomes obvious.

**Draw a character, in mid-air, jumping.**



**REACTION:** The character must react to what has just happened if we are to believe that the character is alive and thinking.

**Draw the same character landing on the ground.**



**FRAMING:** The path of action that the character takes must be planned to avoid loss of readability. Can the character freely act out the scene without interfering with the TV cut-off or objects within the scene?

**Look at your drawing of the character that landed on the ground. Using the knowledge provided in this book, re-frame the character.**

## Do all studios use the same format of storyboard?

For those that were hoping for consistency in animation, this is not the time. No one style of storyboard is universal. Even the same studio will use different versions of storyboards for each different production. I have used storyboards that are nothing more than a 5" x 7" drawing with a few notes on it to an 8 1/2" x 11" page with five small panels with copious notes. Television, advertising and feature storyboards also follow different presentation formats.

This page has examples of blank storyboard sheets. This only a small fraction of the various styles available. The format may vary, but the content remains the same for each studio. By learning any one style, the rest will be easy to produce. Note the similarities of each.

The first storyboard format is a simple 3x2 grid. The left column contains the label 'SC' and the right column contains the label 'ACTION / DIALOGUE:'. Each row is separated by a horizontal line, and each column by a vertical line. A small box with a diagonal line is in the top right corner.

The second storyboard format is a hand-drawn illustration of a storyboard on a wall. It shows a window, a door, and a small table with a lamp. A storyboard sheet is pinned to the wall, showing a scene with a character and a speech bubble.

The third storyboard format is a detailed template titled 'FOWLER CARTOONING INK'. It has a header section with 'TITLE', 'NAME', and 'PAGE' fields. Below the header is a grid of three columns, each with a 'SCENE #' label. Each column has a large rectangular box for a drawing, followed by a 'DIALOGUE:' label, and then a section for 'ACTION / NOTES:' and 'TIME:'. The 'ACTION / NOTES:' section has a small box for a character's name.



Over the next few pages I have dissected a generic storyboard to explain the technical information required to complete it. There are three main aspects of the storyboard that must be shown. They are visual, dialogue, and notes.

## Production Information

Show Name, Number or Project Title      Storyboard Artists Name      Page Number (1/465)

FOWLER CARTOONING iNK      TITLE      NAME      PAGE

SCENE #      SCENE #      SCENE #

PANEL # (1 / 4)

EFFECTIVE VISUAL OF CAMERA ANGLE

DIALOGUE Box  
Spoken word,  
sound effects,  
and music.

Action / Notes  
Brief description  
of action and  
camera moves

Timing / Slugging  
in seconds

TIME:

TIME:

TIME:

Scene transition information such as CUT, X-DISS, FADE, and WIPE

The **Action / Notes** portion that is extracted directly from the written script. Its purpose is to clarify, in words, what the visual is showing. This area can also be used for director's notes on how the scene's timing, colour or special effects are to be handled.

**Dialogue** and sound effects are placed in a box with the character's or object's name preceding it. Occasionally the dialogue is spaced over several storyboard panels in order to best explain the actions of the character speaking.

**Timing or slugging** is added to assist in speaking and non-speaking portions of the show and for creation of the total running time of the show.

**Scene Transition** and camera directions include information on how the scene will end, or transition to the next scene and whether or not there is a camera movement.

**Visual** portion must be created from the originating script, using existing location, prop and character designs, and matched to the action and dialogue sections. Action will determine how many visual panels are required in the scene.



## What does this have to do with layout?

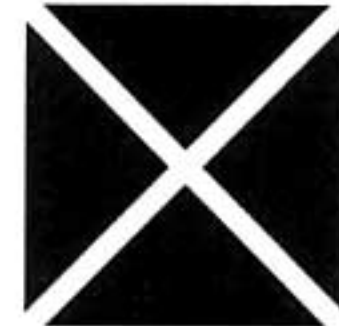
The creation of background layout is based directly on the artwork in the storyboard. Depending on the studio that defines a background layout position, preliminary character poses may be required. For more on this topic refer to the chapter Background Layout vs. Character Layout.

Once in the hands of the layout artist, the storyboard panels are enlarged or recreated, to suit many different factors and elements. For now, think of the storyboard panels as the first rough sketches the layout artist will see. After studying the content of the sketches, a new, well-defined completed version is created for use in other departments. This completed work is called the layout package.

With that said, there is other information storyboards must contain for them to be useful to the layout department.

The transition terms listed below are the most common for creating storyboards. Other terms not listed here, such as PANS, TRUCK-IN or OUT, and CAMERA SHAKE are camera moves and will be defined in a later chapter of this book.

**CUT:** A term used to describe an end to the current scene. The next scene consists of a different location or angle that is separate from the previous scene. (The end of the scene)



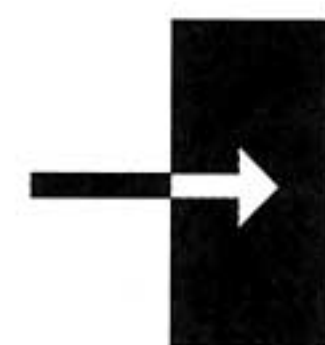
**FADE-IN:** A camera function. Opening the aperture from 0% to 100% exposure, over a number of frames. (Starts dark and gets bright)



**FADE-OUT:** A camera function. Closing the aperture from 100% to 0% exposure over a number of frames. (Starts bright and gets dark)



**CROSS DISSOLVE:** A combination of fade-out and fade-in produces a "ghost-like" effect as one scene disappears while the other appears at the same time. Start and Stop frame are the same for both the fade-out and fade-in.





## POSE SHEETS (MODEL SHEETS):

The pose sheet is used as an animation and layout accuracy tool to keep the characters, props, locations, and special effects on model. This is a widely used and accepted tool of the animation trade.

Below on the generic pose sheet, I have labelled key information sections that you will expect to see at most studios. For reason of clarity use **CAPITAL LETTERS** to label all parts of the **POSE SHEET**.

**CHARACTER / PROP:**  
PRINT the character or props name neatly in this box.

**ARTIST:**  
PRINT who did the artwork.

**FINAL / DATE:**  
Clearly date when the artwork was completed.

**REVISED / DATE:**  
Place the date that this sheet had to be revised and approved by the director.

**REGISTRATION / FLOOR LINE:**  
Use this line as a guide to plant characters in a row. For pose and prop sheets it is removed and not used.

**CHARACTER OR PROP ARTWORK IS DRAWN HERE. WITH OR WITHOUT FLOOR LINE.**

**CHARACTER / PROP DESIGN**

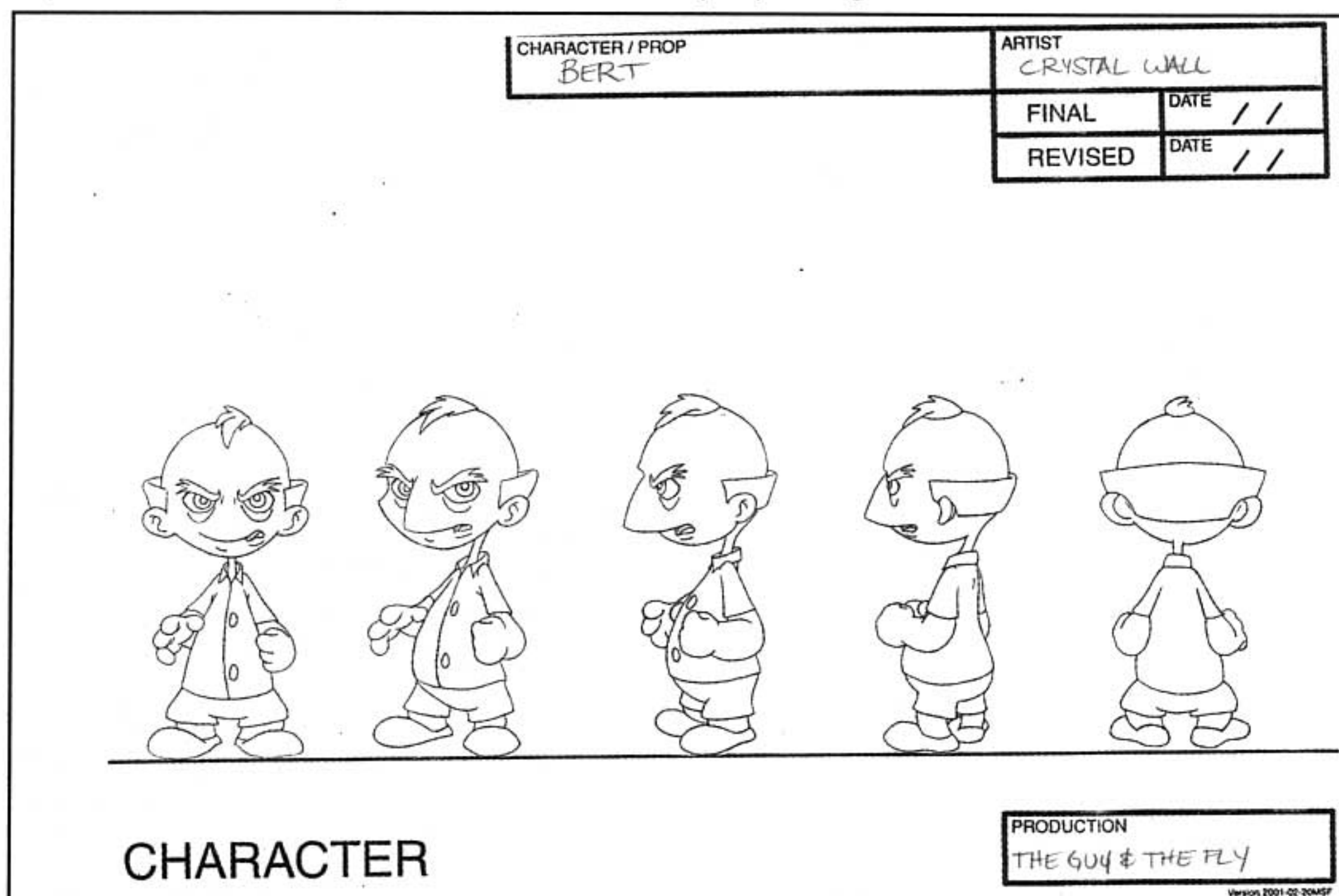
**PRODUCTION:**  
Clearly PRINT the PROJECT NAME and NUMBER or SHOW and SCENE NUMBER in this box.

CHARACTER / PROP		ARTIST	
FINAL	DATE		
REVISED	DATE		

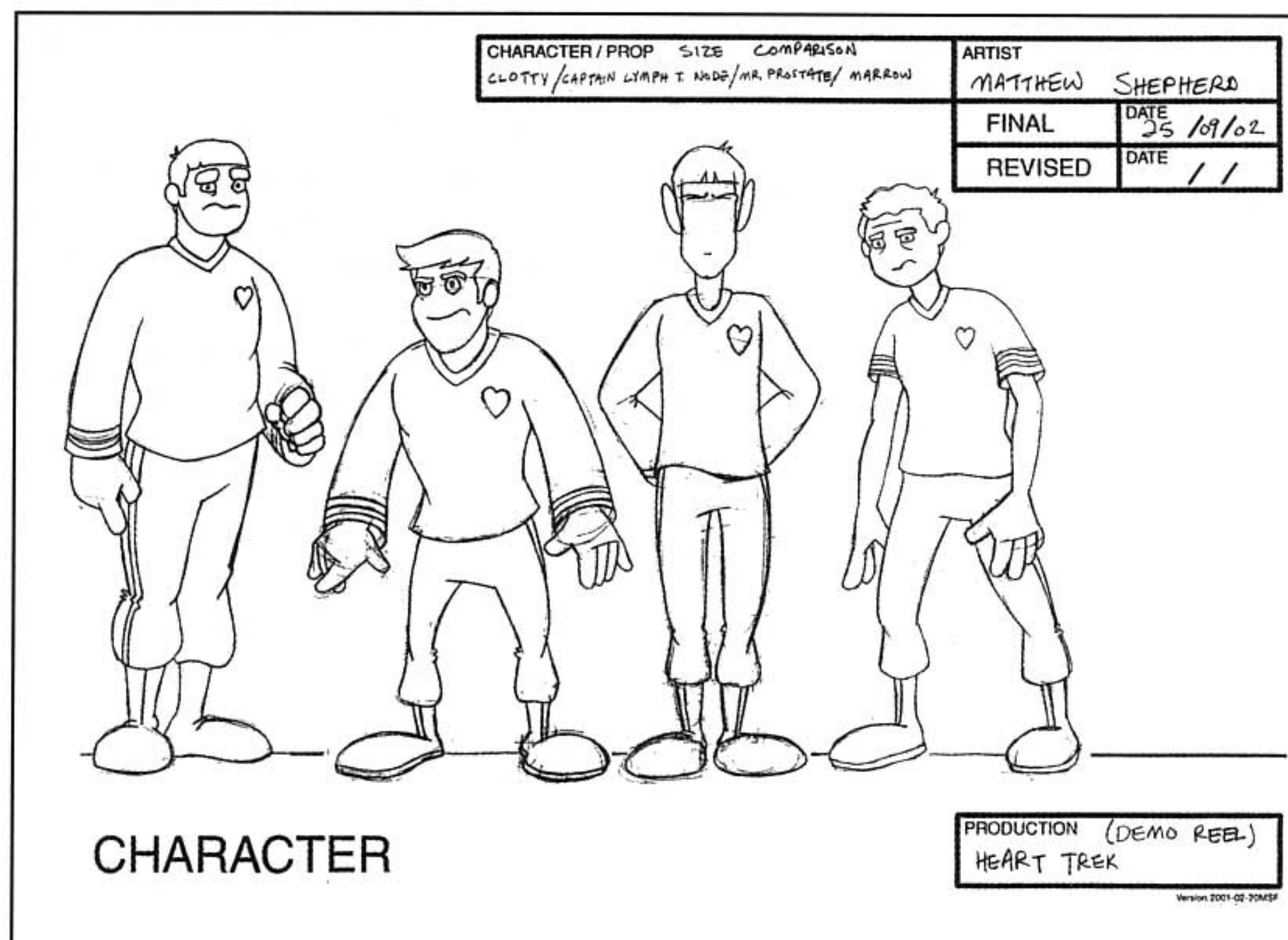
PRODUCTION	
------------	--

For the animation student, take the time to prepare these sheets for a professional touch to your portfolio.

**CHARACTER POSE SHEETS** or **FIVE POINT TURNAROUND** consist of normally one character in five poses that include: full body frontal view, 3/4 view, side view, 3/4 rear view and a back view. Supplemental sheets include various action poses, facial expressions and the lip synch guides.



Character Line-Up Sheets consist of all or as required, characters from a show, arranged like a police line-up for size, height and other comparisons.

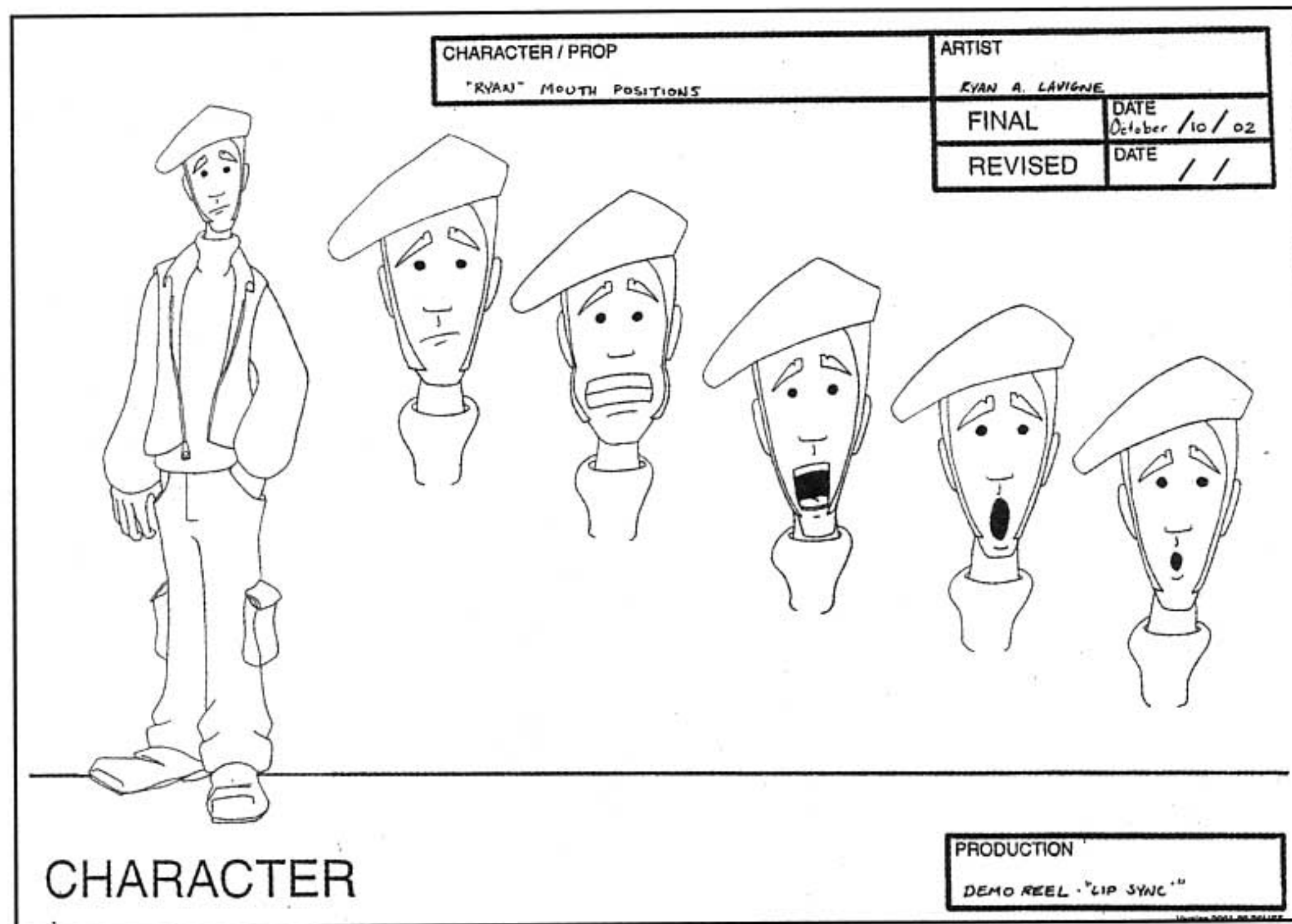


Top Model Sheet by Crystal Wall. Bottom line-up by Matthew Sheppard. Both Year 2 Animation Students.



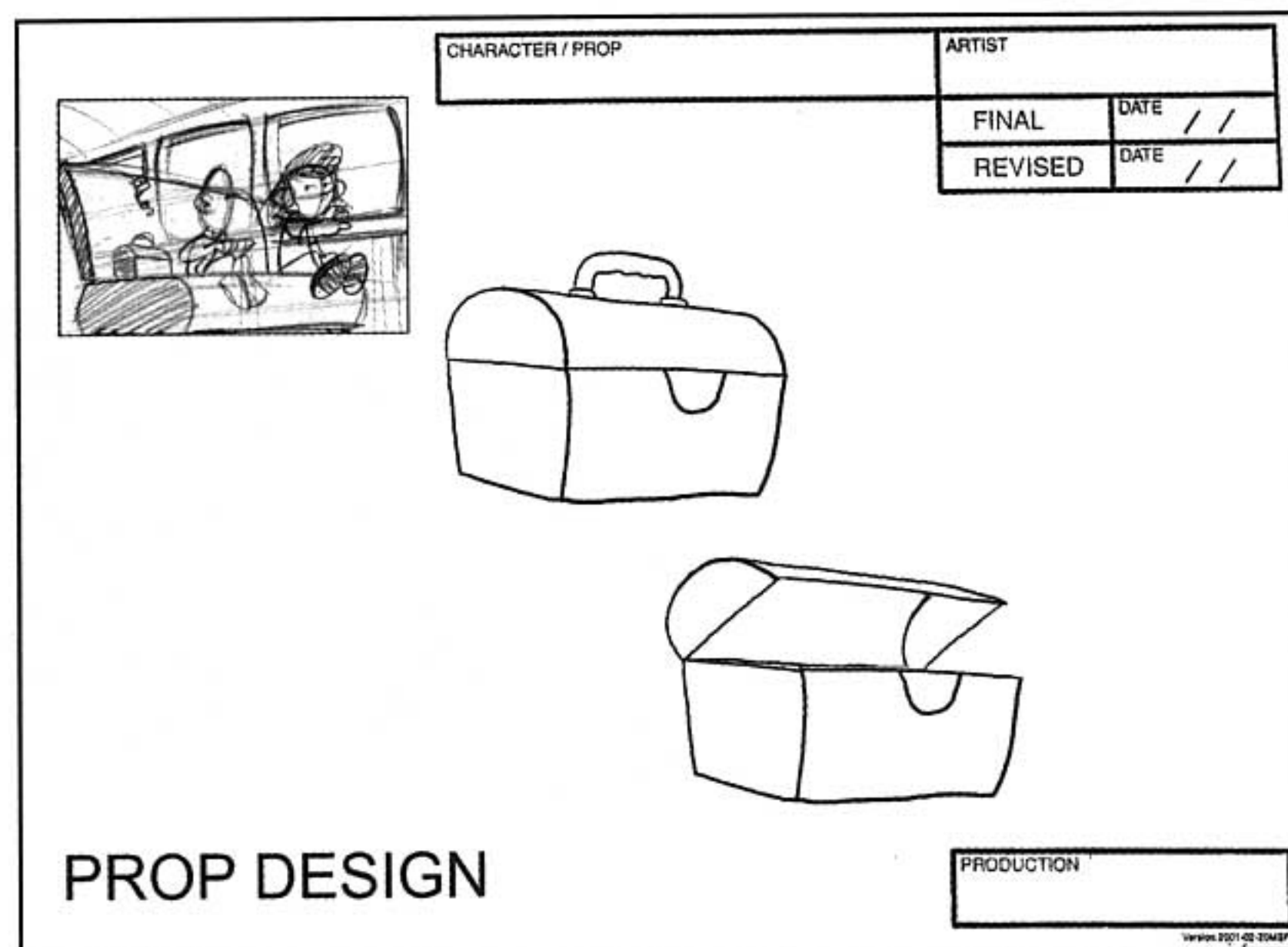
## CHARACTER MOUTH SHEETS AND PROP SHEETS.

The character Mouth Sheets contain six to eight standard mouth position for dialogue. Many sheets are created to convey different character emotions.



Created by a year two animation student Ryan Lavigne.

**PROP SHEETS** consist of normally two to three various positions of an object. Only one prop per sheet is shown. The prop sheet is used to ensure consistency in size, form, structure and proportion.



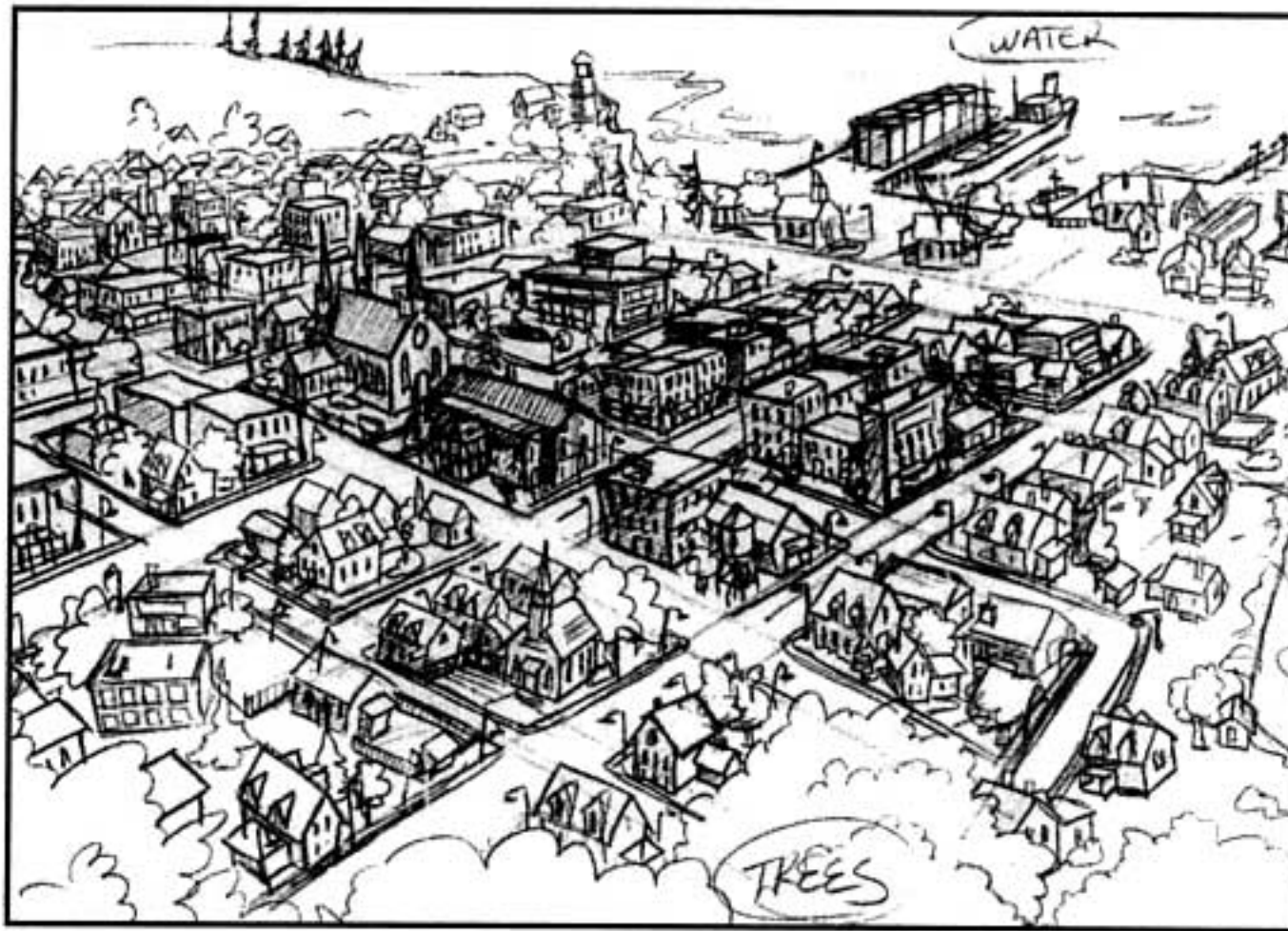
As illustrated above, a storyboard is included to indicate where the prop is used. The details supplied on each prop depend on the type of animation the show consisted of.

**LOCATION DESIGN** consists of an overall view of the environment where the animation will take place. Traditionally, a story, in the form of a script is provided to the lead location designer. Working with the director, it becomes the designers responsibility to shape the style, or look of the show. This includes artwork of floor plans, aerial view artwork, long pan backgrounds and tonal interpretations of the concept. The art director has final approval of any material designed.

**PRODUCTION NAME**

EXT-DAY:DOWN SHOT CITY

sc# 6, 14, 67, 312

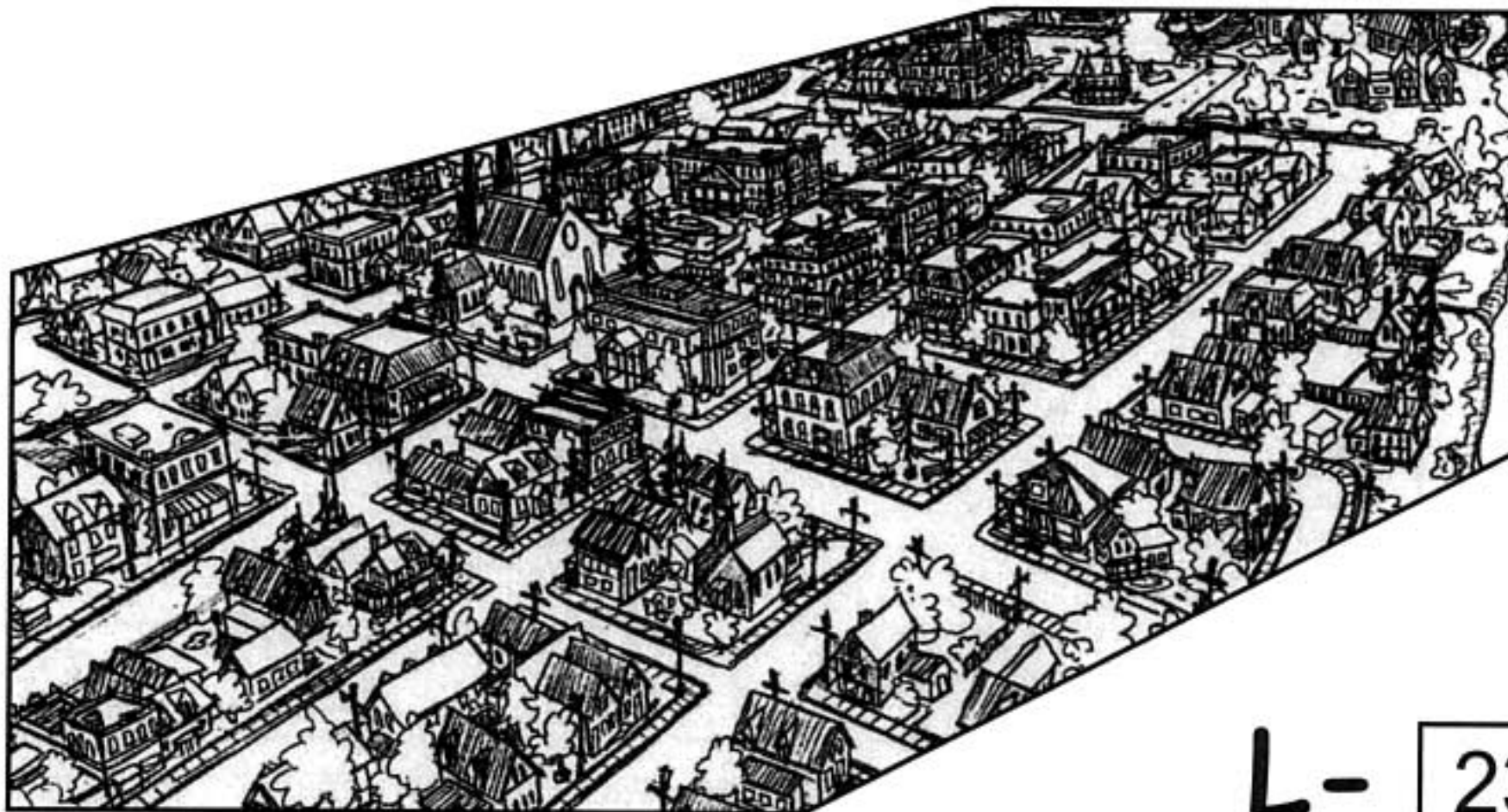


L- 56

**PRODUCTION NAME**

EXT-DAY:D/SHOT NEW CITY

sc# 286



L- 23



Once the layout department receives the storyboard, prop, location and character designs, the work begins.

The layout department dictates the quality and direction the artwork will take on. If the perspective is off; if the characters are off model; if the background elements are not designed with character movement in mind, then the overall quality will be lost.

**LAYOUT IS THE CRUCIAL STEPPING STONE TO THE REST OF THE PRODUCTION. PLAN THIS STAGE THOROUGHLY!**

By not fixing perspective, continuity, fielding and staging problems all following departments, (ink and paint, BG painting, animators, and compositors), will unfortunately produce inferior work. Remember, when in doubt; draw a thumbnail sketch to fix it.

Whether for television, or feature production, it is always advised to re-read your assigned storyboard sequence several times to ensure it is understood. In feature film, always check with the lead layout designer for continuity and style questions that may arise.

The focus of the layout artist is to now dissect the storyboard scene by scene, and panel by panel, looking for: perspective, required camera shots and angles, composition and framing, staging and perspective grids, element placement and level separation. This has all been covered thus far.

Having read to this point of the book, you should now be more familiar with the foundation building blocks of the layout artist. The next chapter prepares the layout artist for the technical side: the dark side.

## **EXERCISES:** CHAPTER 7 Support Material

Try these exercises which focus on creating prop and character pose sheets. The focus for this exercise is not on character creation and all of the foundations to make that character solid. The focus is to understand how a five-point turn around is set up and the method required to create such a sheet.

Use several 8 1/2" by 11" sheets of paper turned on its side. The choice of pencil is up to you for these exercises.

Below are three assignments to design:

1. A character model sheet of a wizard. The character is standing up straight and will be in the same position for all five drawings. Draw this character in a frontal, three quarter front, side, three quarter back, and a back pose. Line up all the drawings on the pose sheet guideline.

2. Design a prop that a superhero would use to fight crime. The tool must be large enough to do damage to the bad guy, but also collapsible to fit into the hero's belt. The device must have a rope attached to it.

Create two different views of the item and place onto one sheet. Label it as shown for a prop in this chapter.

3. Create a female clown character. Draw the full-clothed body of the clown and draw three different poses of that same character. The poses include sitting, reaching up high and running. Place all of these on the pose sheet but **NOT ON THE GUIDE LINE.**



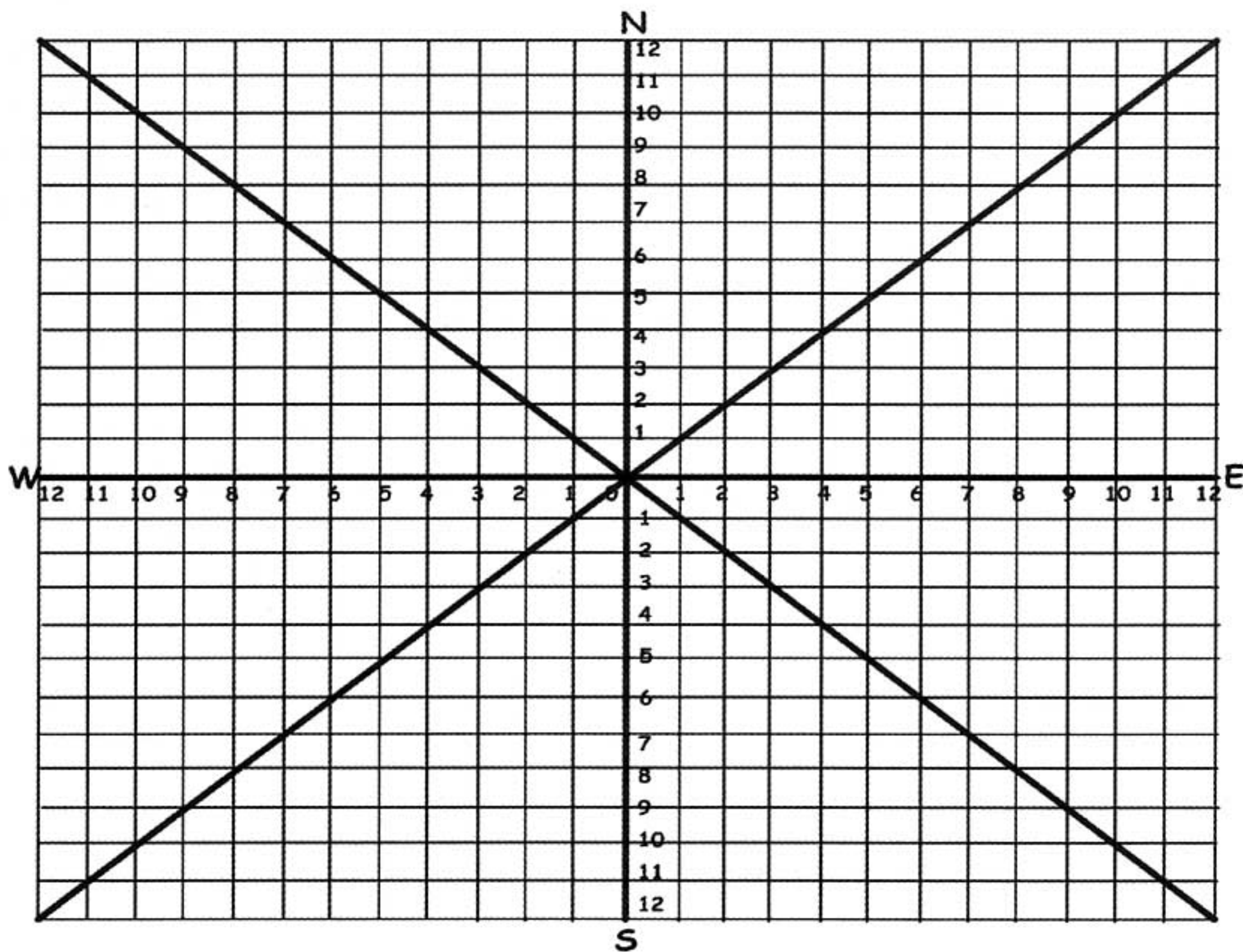
## GRATICULE, FIELD GUIDE AND LABELLING:

Graticule  
Field Guide  
Level Sketch  
TV Cut Off  
Peg Bar  
Camera Information  
Pan Details  
Additional Poses

## GRATICULE, FIELD GUIDE AND LABELLING

What is a graticule? Many students and people in the industry mistakenly call this the field guide. The graticule is based on a grid system that has a ratio aspect of 1:3/4. Horizontal measurements are blocked in inch sections, while vertical measurements are blocked in 3 / 4's of an inch. Why? This is the size and settings of most television and theatrical movies. (Widescreen and all its variations are based on a similar measurement)

Several different types of graticules can be purchased through animation suppliers with different qualities. I suggest spending the extra money to buy a professional quality graticule that will last a long time over the cheaper student guides available. Both work equally well, but the more durable of the two will last.



This is an example of a typical 12 Field Graticule.

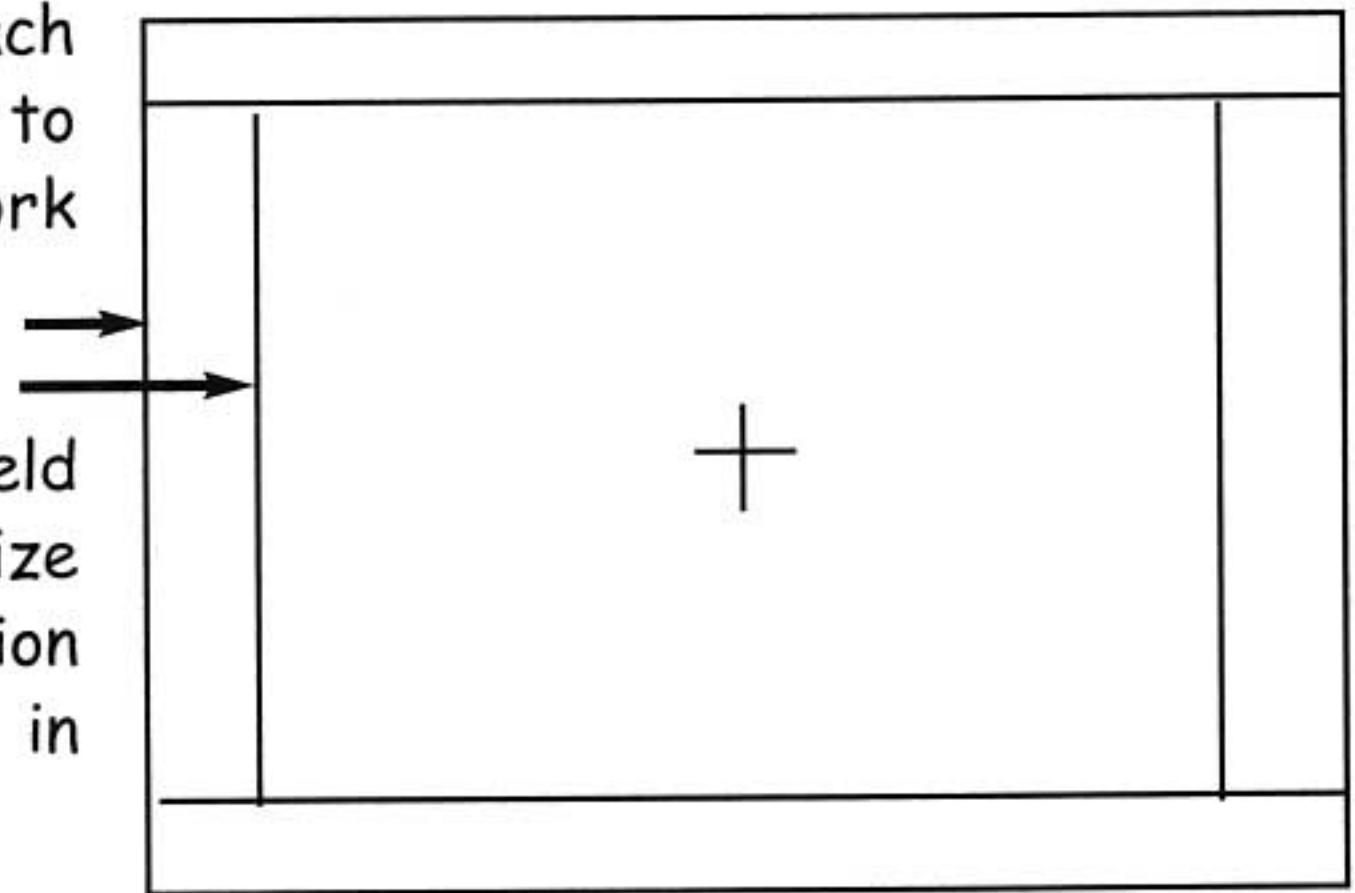
**What is it for?** The grid system of the graticule is used to accurately create field guides in the layout department. These field guides are what the camera will see in the scene. The graticule grid system can be purchased at a 12 Field (FLD) maximum, a 16 FLD maximum and at a 32 FLD maximum sizes. There are larger units but they are rarely used in traditionally drawn layouts.



## FIELD GUIDES:

Field guides are created for each scene of the show using the graticule to explain how much of the artwork environment the camera will see.

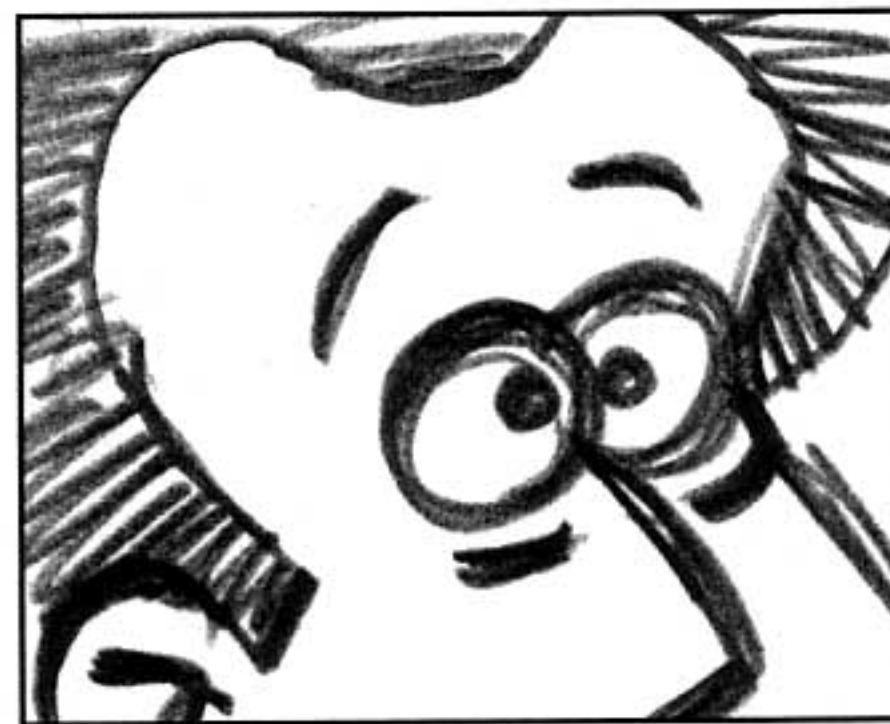
There are two portions to the field guide. The outer line shows the field size while the inner line shows the television cut off. This will be explained later in this chapter.



The field guide contains other scene information about the where the field guide centre is, levels to use, hook-up notes and even character pose positions. The reason for different sizes of field guides is to maintain consistent line weight and production time.

Below are two examples.

If the scenes were all drawn at 12FLD and then we cut to the same drawing only closer, the line would appear thicker to the viewer.

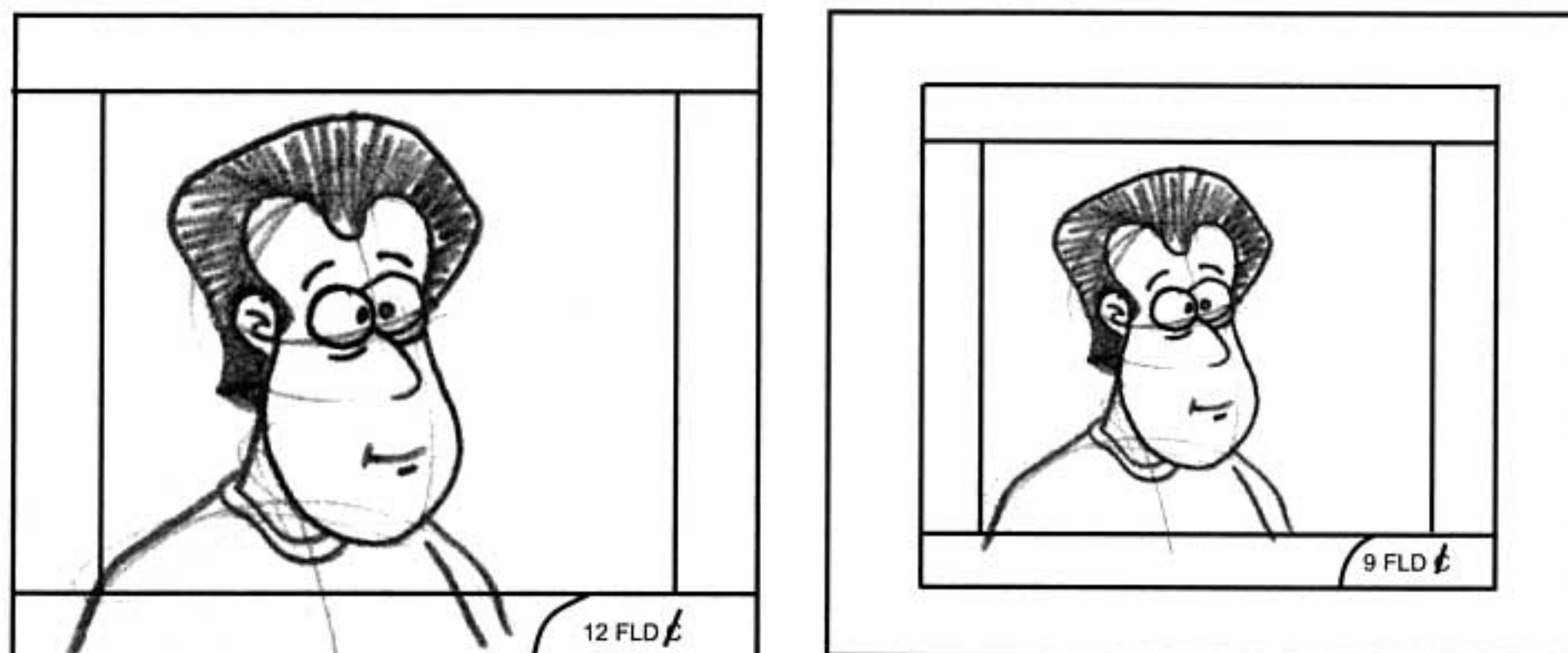


Try looking at the edge of this book page from two feet away. Now move within six inches of the edge. Note the difference in what can be seen?

The line quality of an animated show has to be consistent throughout. Any line weight change, as previously illustrated, the viewer would stop viewing the animation story and concentrate on the individual images. Not a good thing.

Time is the other reason. The layout artist must consider the animator who receives the scene next. It would be a waste of time to draw a close up shot of a face at a 12FLD when the same shot could be easily drawn at a 9FLD.

The larger the drawing field size, the more pencil mileage must be done to complete it. The reality is, time is money for the layout artist and the animator.



Layout labelling must clearly show all required elements of the scene. In this example I have included the first pose and camera pan directions. Further information on camera moves is explained in the chapter on Camera Moves.

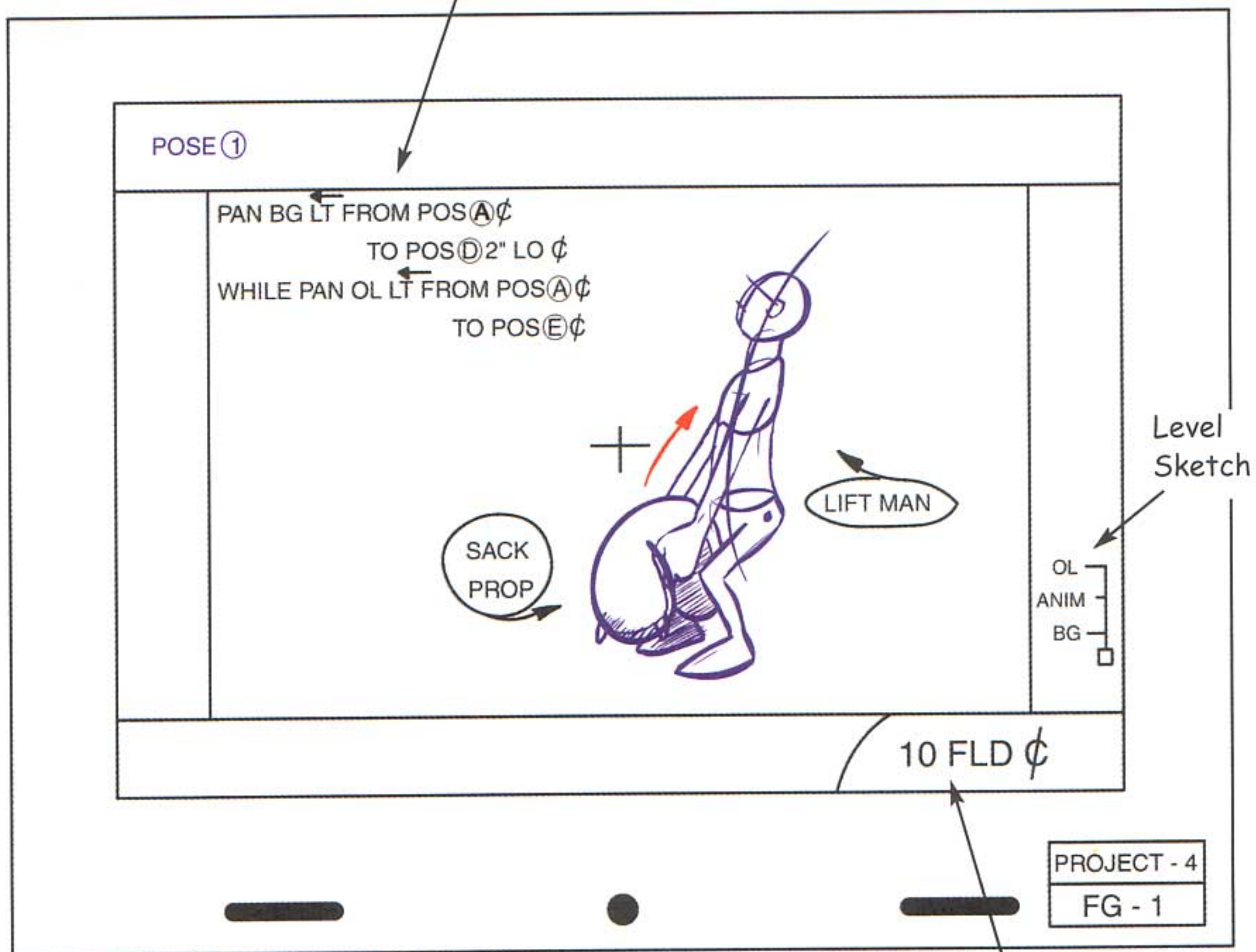
One important factor in labelling that is standard in most animation studios is the use of only CAPITAL LETTERS. This is for ease of readability. There is nothing worse than a beautiful layout package that has printing so illegible it could be best described as chicken scratch. If you are not accustomed to printing in only capital letters, start now.

Try to block all of your letters similar to that of the architecture or draftsman print.

**NOTE:** If your supervisor can not read your name, what are the chances that the production coordinator can read it? By the way, most studio production coordinators are also the people responsible for completing your pay sheets. Think about it.



Camera Information must be present for all camera moves and must contain: What is happening? What is moving? Where does it start and where does it end? This information is placed in the upper left hand corner **INSIDE** the television cut off box.



In the same colour as the field guide colour, clearly number the **FIELD SIZE** followed by "FLD", then the position of the field guide.

The example above is: **10 FLD ¢**

Meaning it is a ten field and the field guide is centred at 0,0 on the graticule. The 0,0 is not required.

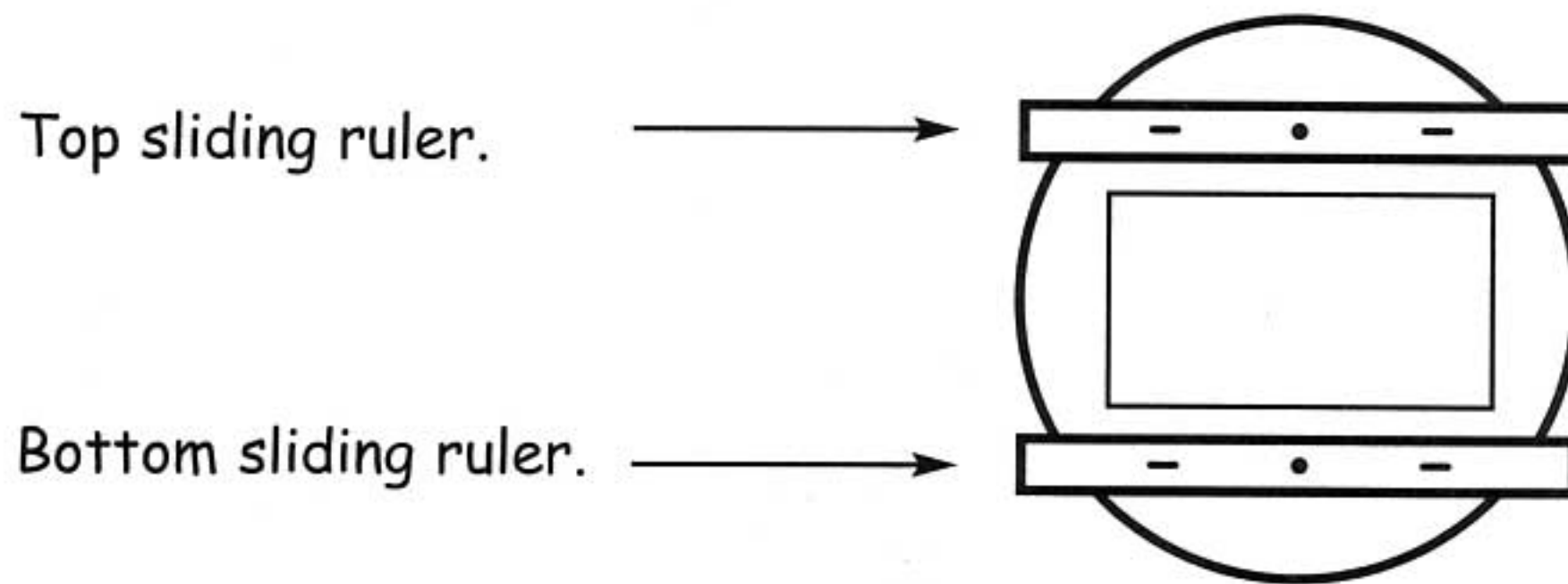
Another example is: **8FLD 3W 2N**

Meaning this is an eight field. The centre of the field guide is three lines west from zero and two lines north from zero on the graticule.

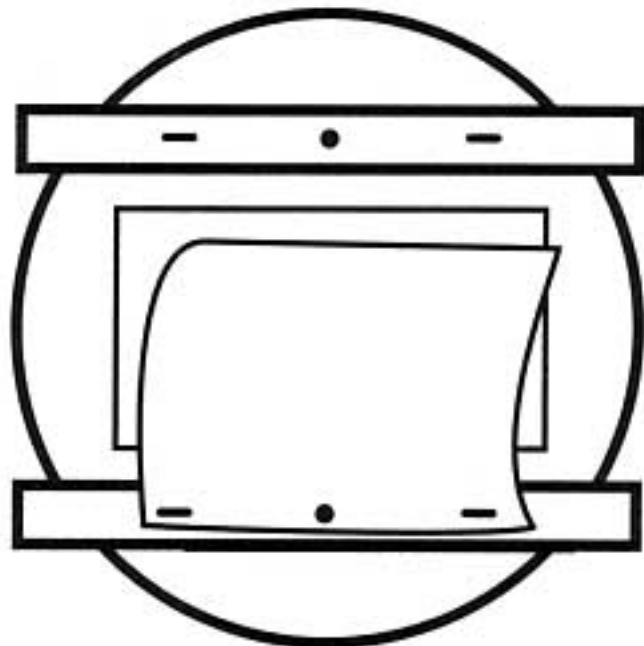
## LEVEL SKETCH:

The level sketch is used in various forms, in different studios, but the purpose is to show the compositor where the artwork is pegged and in what order the levels must be shot under the camera, from the bottom, working up. Level sketches are normally in BLACK.

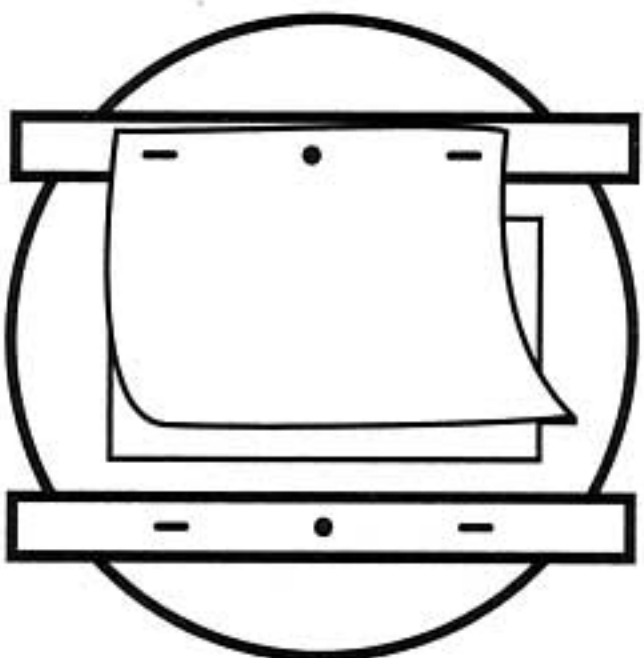
To best understand what is a level sketch, and where it came from let us look at an animation disk. As seen in this diagram, there are two sliding rulers with square and round pegs.



With the disk lined up so that the rulers / peg bars are horizontal, one is now on the top and one is on the bottom.



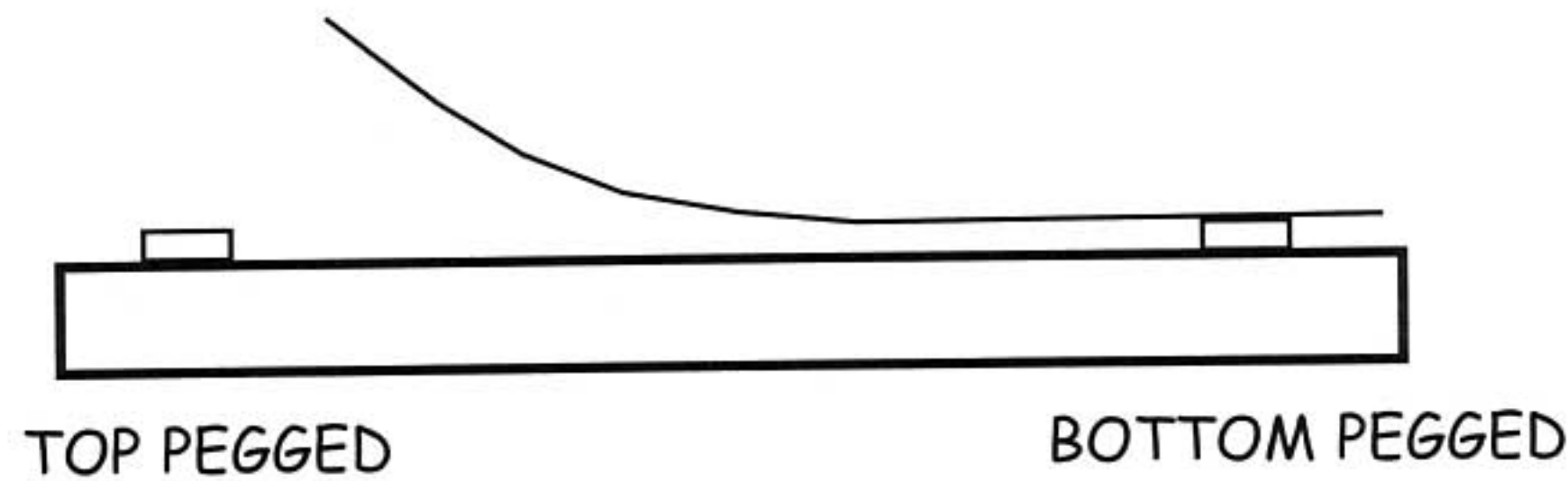
**Bottom pegged** is when a sheet of animation paper is placed on the **BOTTOM** pegs.



**Top pegged** is when a sheet of animation paper is placed on the **TOP** pegs.

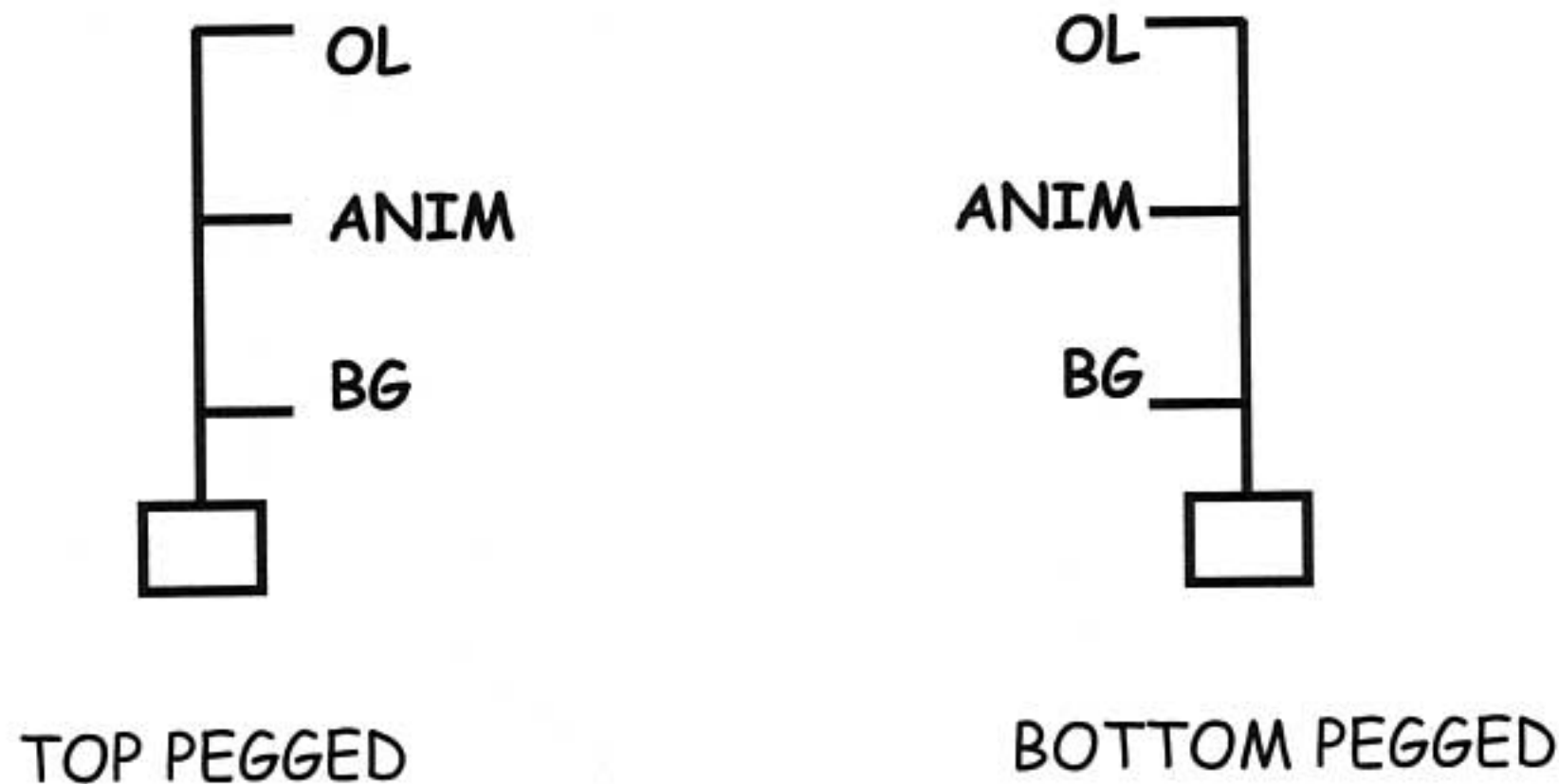


Carefully lay your animation disk flat on a table and look at the edge so both ends of the rulers / peg bars can be seen. Using the same positions, top and bottom, this is how the level sketch was created.



In the above example, the paper is placed on the bottom peg bar.

As production time decreased and speed increased, the level sketch was reduced to a square with a vertical line running straight out from the top. In the level sketch examples below, the order of elements is the same. The difference is that one is top pegged and the other is bottom pegged.



**How do we know which is top pegged and which is bottom pegged?**

The direction of the level words in relation to the line will tell us. If necessary, the letters TP and BP can be added for extra clarity.

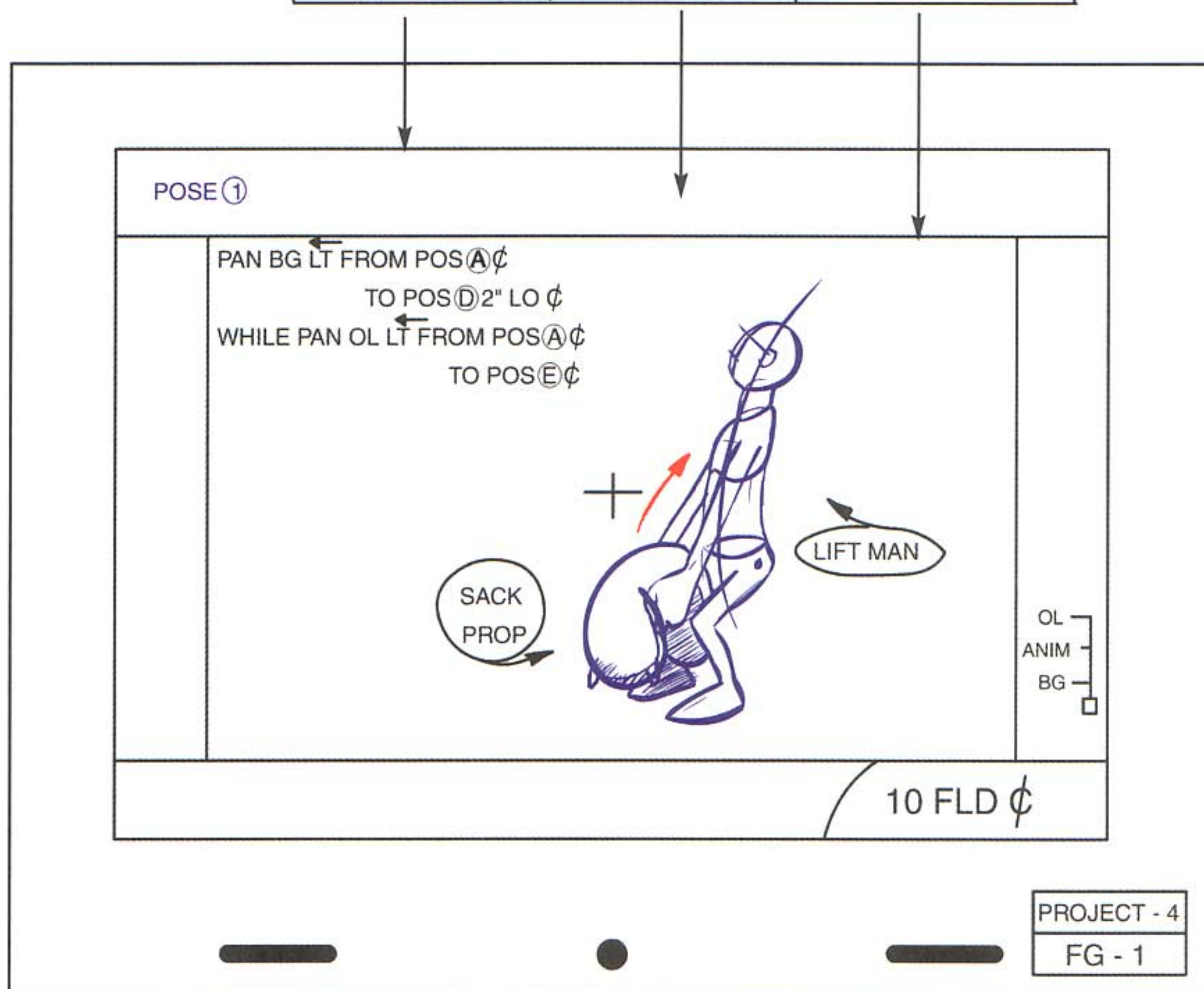


## TV CUT OFF:

Television cut off is the portion of the field guide known as the safety zone. From the storyboard, the layout artist draws the animation poses and background elements to visually fit and work well within this safety area. Great effort is placed on keeping elements and poses from straddling the TV cut-off or being just visible near it. Either it is in the picture, or it is out. The rest of the background elements, outside of the cut off area, are drawn to the paint line. (See the chapter on Background Layout Elements)

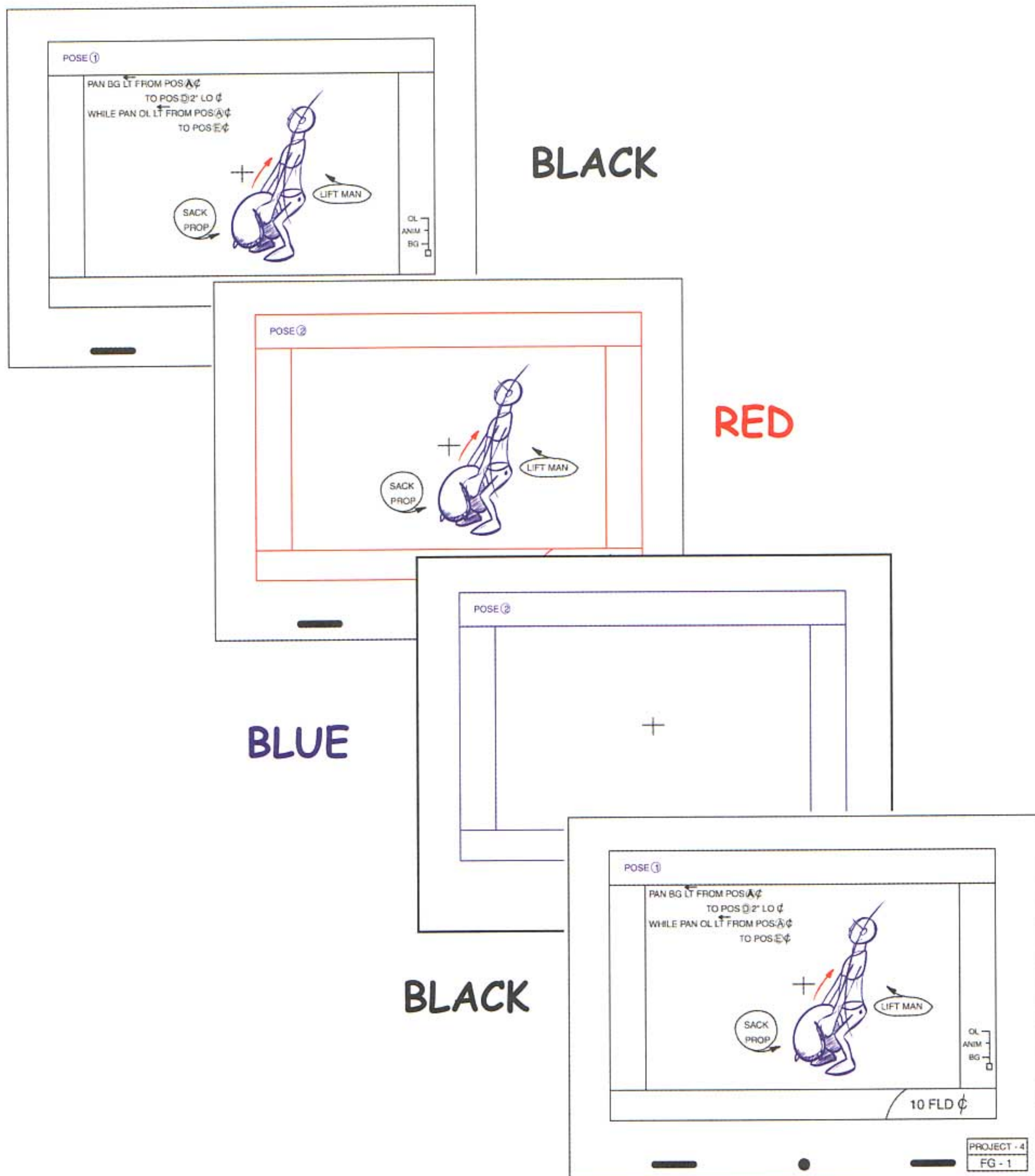
Shown below is a standard boxed safety zone / TV cut-off. The safety margin can be summed up as: 7 field and under one field block wide, 8 field 1  $\frac{1}{4}$  field wide, 9 and 10 fields 1  $\frac{1}{2}$  fields wide, 11 field 1  $\frac{3}{4}$  fields, and 12 field 2 fields wide.

FIELD SIZE	CUT-OFF	SAFETY FIELD
7 FLD	1 FLD	6 FLD
8 FLD	1 $\frac{1}{4}$ FLD	6 $\frac{3}{4}$ FLD
9 FLD	1 $\frac{1}{2}$ FLD	7 $\frac{1}{2}$ FLD
10 FLD	1 $\frac{1}{2}$ FLD	8 $\frac{1}{2}$ FLD
11 FLD	1 $\frac{3}{4}$ FLD	9 $\frac{1}{4}$ FLD
12 FLD	2 FLD	10 FLD





More than one field guide may be required within a scene. To differentiate between them, the layout field guides are coloured in order from **BLACK**, to **RED**, then **BLUE**, then repeat as necessary starting again with **BLACK**.

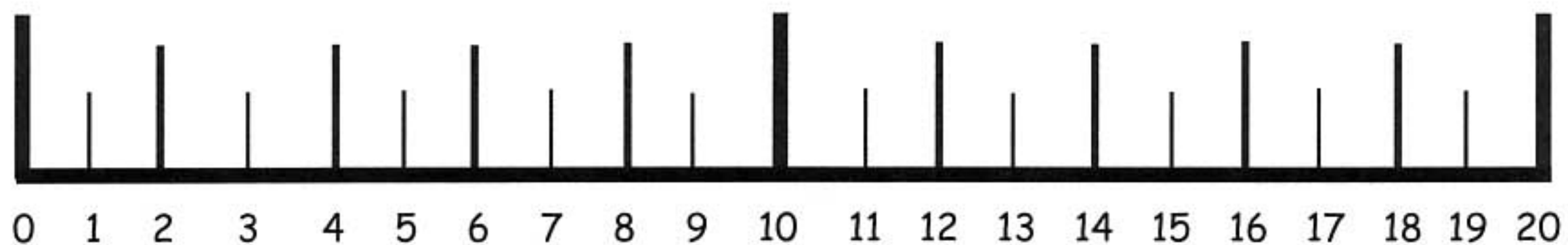


## PEG BAR:

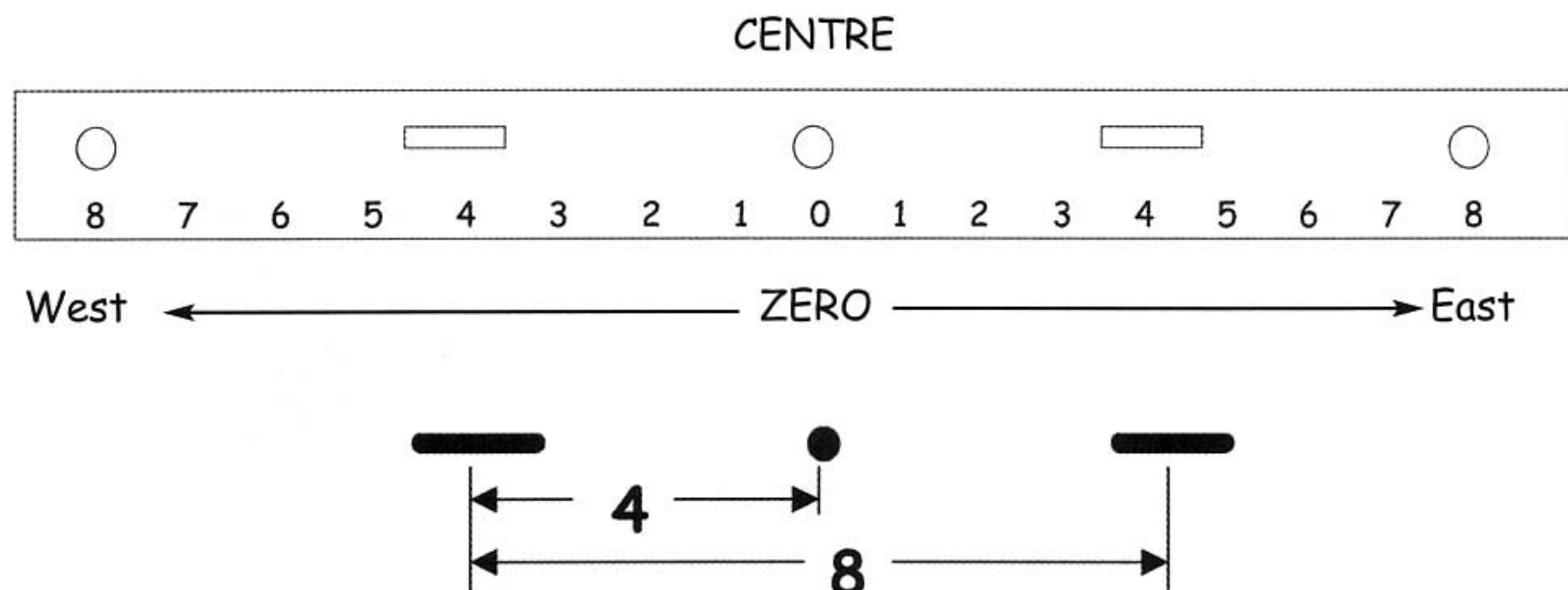
As explained in the level sketch section, the animation paper is secured by way of three pegs: a square, a round then a square peg. When the paper is secured to these pegs, the term 'registered' is used. If the paper were loose, the measurements would be guesswork and far from being exact.

**What are all of the numbers on the peg bar? Can I use a regular ruler to measure my work?**

The animation peg bar ruler is measured in 20ths of an inch. Every half an inch, is divided into ten parts. A typical ruler measures in 16ths, or 32nds of an inch. Why not metric? Some studios do, but most utilize the 20th of an inch measurement. This is why you can not use a standard ruler to measure or calculate layout movements.



The peg bar ruler has one additional unique way of measuring inches. Starting at zero at the centre round peg, the numbers increase (1,2,3,4...) on the right side. Also starting at zero at the same round peg, the numbers increase (1,2,3,4...) on the left side. This allows measurements West or East of zero to be easily explained.

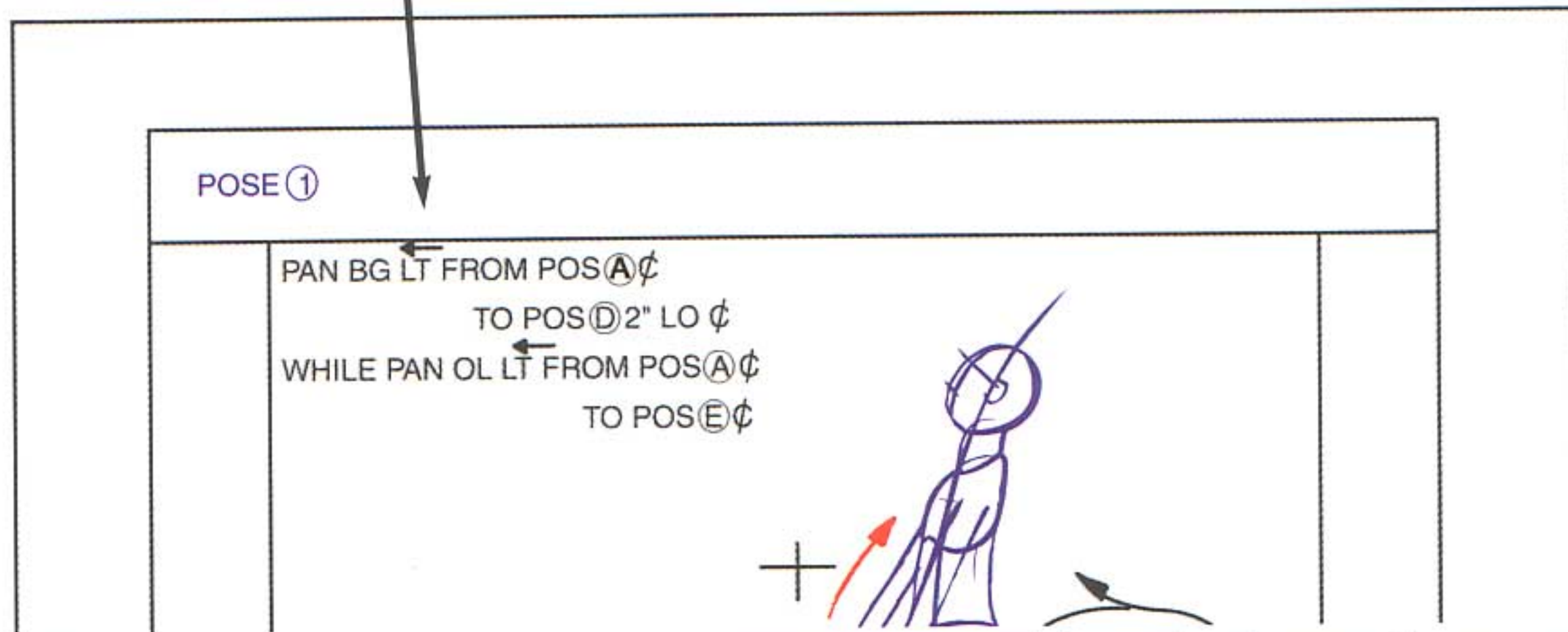


From a square peg to a round peg, the distance is four inches. From a square peg to another square peg is eight inches.



## CAMERA INFORMATION:

Within the top left hand corner of the field guide, all camera direction must be labelled.



There are different terms and directions used, but the format is generally the same at each studio.

In all **CAPITAL LETTERS** the information consists of:

The type of camera move;

The element to move (**BG**, **OL/UL**, **OL**, **ANIM**);

The direction of move: **LT** (Left) or **RT** (Right);

The word **FROM** followed by the peg position circled with centre ¢ or inch from nearest start peg **POS**;

The word **TO** followed by the peg position circled with centre ¢ or inch from nearest end peg **POS**;

To explain other moves use: **WHILE**, **THEN** or **DURING**.



## PAN DETAILS:

A pan is long piece of artwork that has more than one 12 FLD page in length. As stated in a previous chapter, the camera can move anywhere north, east, west and south, provided the field guide being used can fit completely within the one 12 FLD sheet.

A pan allows the camera to move the field guide north and south. For movement east and west, the artwork must now move, not the camera. Labelling in the field box does not show E or W in the field size. To move east or west, the pan must rely on the pegs, and the peg bar ruler, to measure the distance needed. This is covered later in this chapter.

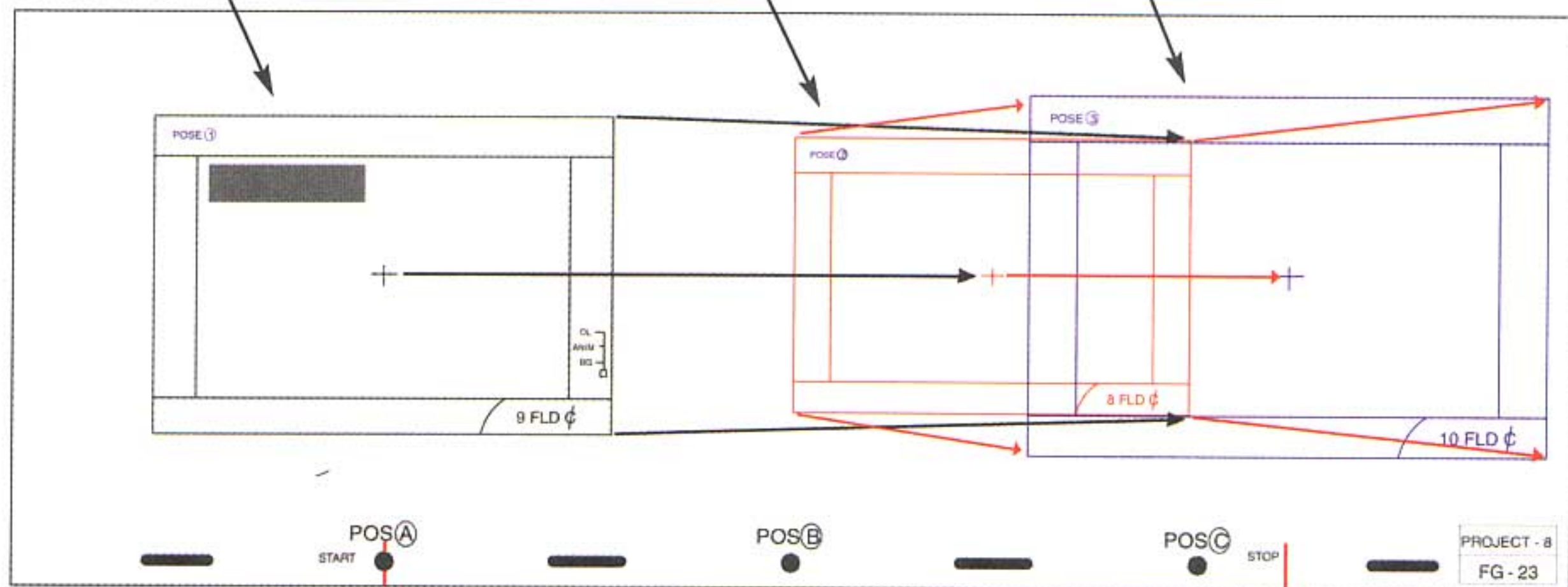
Camera directions for a pan movement must be documented on the first field guide in the top left hand corner. The information shows what direction the pan will move, where it starts, and where it ends. (See previous page for more details)

### PAN / CAMERA DIRECTIONS

First FG is BLACK pencil  
BLACK lines

Second FG is RED  
RED lines

Third FG is BLUE  
BLUE lines(not shown)



**NOTE** the use of different field guides and colours. Whenever a new field size is required or position of the field changes, a new field guide must be created. In the above example the field guide changes three times.



A single field sheet of animation paper has three holes, (square, round and square). Pan paper continues this pattern to the papers end, with a new round peg followed by a square peg. It does not matter if it is a horizontal, vertical or diagonal pan, the labelling of each of the round peg holes is the same.

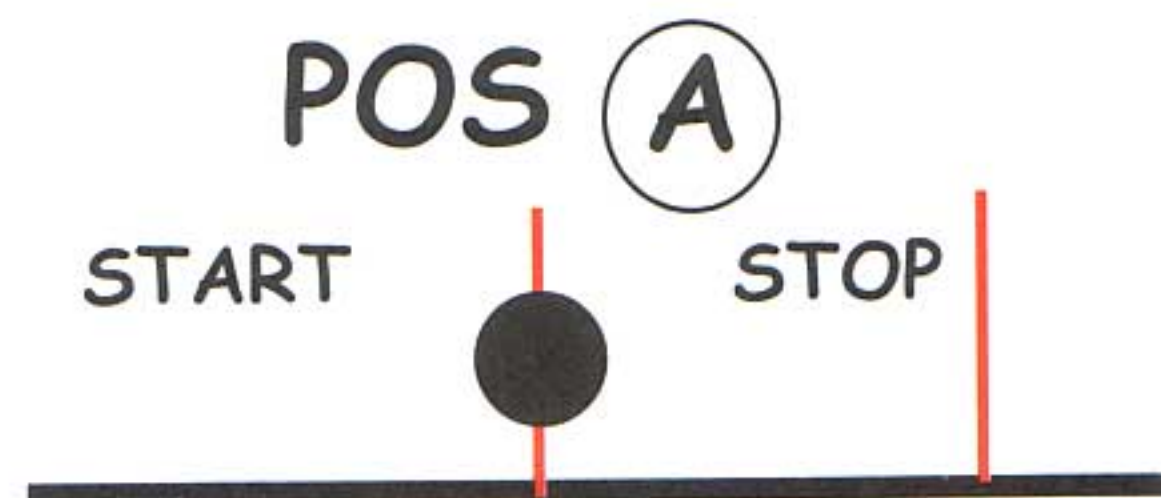
In order from left to right, the round peg hole is labelled with **CAPITAL** letters starting **POS A, B, C, D...** until the pan is complete. Even if the pan is top pegged, the naming of the round peg holes start with an **A** on the left side of the paper. The peg letter following **POS** is always circled to avoid confusion with other information labelled on the pan paper.



This is an example of top peg labelling. Note the position of where the **POS** is placed. Never write over, or allow division by the peg hole, as crucial information can be lost when adding **peg reinforcements** or when photocopied. Peg reinforcements are designed to protect the peg hole from being ripped, or worn during normal production. Most studios require them on all artwork; it is not an optional item!

As seen in the previous pan examples, the other segment of information required is a start, and an end position.

The start and stop information of a pan is very useful to do exactly what the name suggests, start and stop.

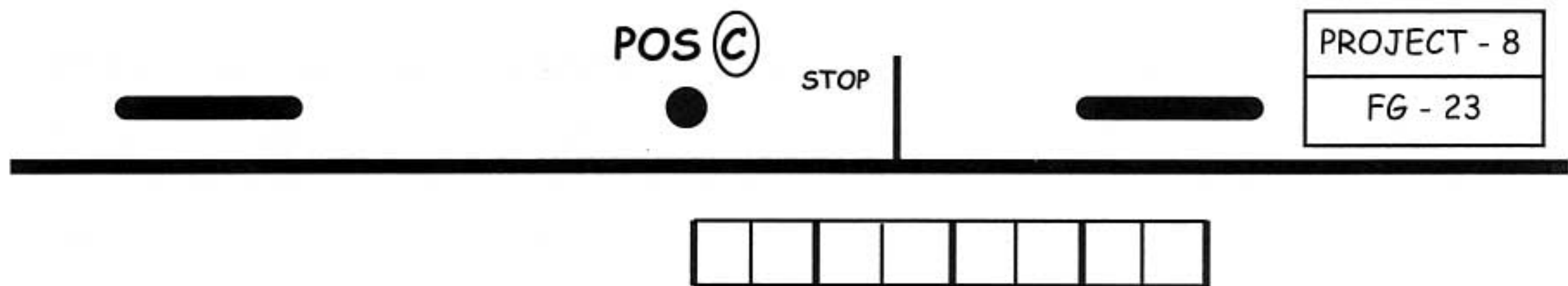


In black pencil, on the left side of the red centre line, the word **START**, or **STOP** is printed. The red centre line is created by drawing a vertical line from the centre crosshairs of a field guide, to the bottom of the page. Only an inch is drawn at the page edge. A field guide positioned directly over the round peg will have the red centre line drawn through the round peg hole.



When the **START** or **STOP** position line does not line up with a round registration peg (centre of the field), measurement must be taken from the peg bar ruler and labelled in the **CAMERA DIRECTION** area of the field guide.

In this example below, the **STOP** line is not on the round peg hole at **POS C**. Using the peg bar ruler, (not a regular ruler), we can find the distance the **STOP** line is from the round peg.



In this example, the **STOP** line is one and a half inches away from the round peg.

Transferring this information to the field guide is written as:

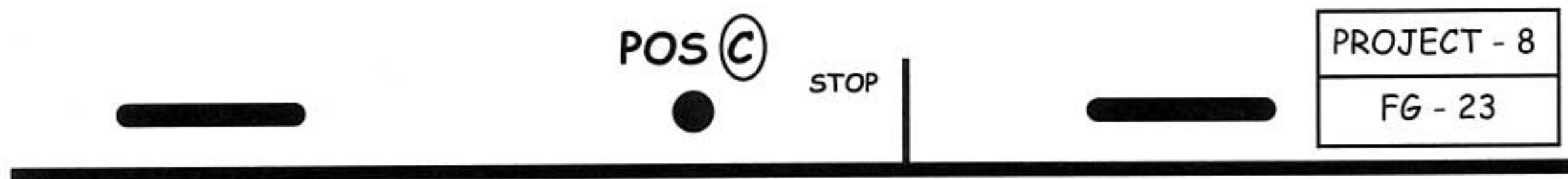
POS C 1.5" ¢  
or  
POS C 1 1/2 " ¢

The problem with how the information above is written, is we do not know which side of the round peg hole it is on? If we were to simply look at the line, you would logically state that it is on the right of **POS C**. Unfortunately, that would be wrong.

Most of the animation work completed today is compiled on various computer programs. The animation and layout levels are scanned into the system then adjusted as required to make the animation work. Using a traditional production method of shooting (photographed one frame at a time under a camera), the artwork would move along the peg bar, not the camera.



Let us use the same example with the **STOP** position at one and a half inches away from **POS C**. We have learned that **POS C** is a round centre peg. To get to the full image at the **STOP** position, we must move the artwork left, while the camera remains in place. This **STOP** position is a new centre; the round peg hole at **POS C** is the original centre. Therefore **POS C** is one and a half inches left of the new centre **STOP** position.



The label acronym would read as **LO¢**, (left of centre) of the closet round PEG hole, **POS C**. Transferring this information to the field guide it would be correctly written as:

**POS C 1.5" LO¢**  
or  
**POS C 1 1/2 " LO¢**

For many students this section of layout can be painfully difficult to grasp. I primarily attribute this to how it is taught. I prefer to keep the explanation of this simple. When this was first introduced to me, honestly I was confused. There appeared to be no reason why it was done this way, it just was. It was not until a few years later that I was provided a trick to help understand.

**The trick was:** Look at where the line is in relation to the closest round peg hole. If it looked like it was on the right think of the opposite. If it looked like it was on the left, think of the opposite. My students agree that this method works!

**NOTE:** A pan uses a directional sentence such as **POS C 1 1/2 " LO¢**. When writing the field size in the field guide, only the field number and direction N or S can be used. There is no use of East or West in the field guide.



## ARTWORK INFORMATION BOX:

The bottom right corner of any layout page is an information box. Be it a circle, a box, or a line separating the details, the information that is found is fairly standard. It states the **PRODUCTION NAME**, **SHOW NUMBER**, **SCENE NUMBER**, and **ELEMENT TYPE**. Below are two common box formats.

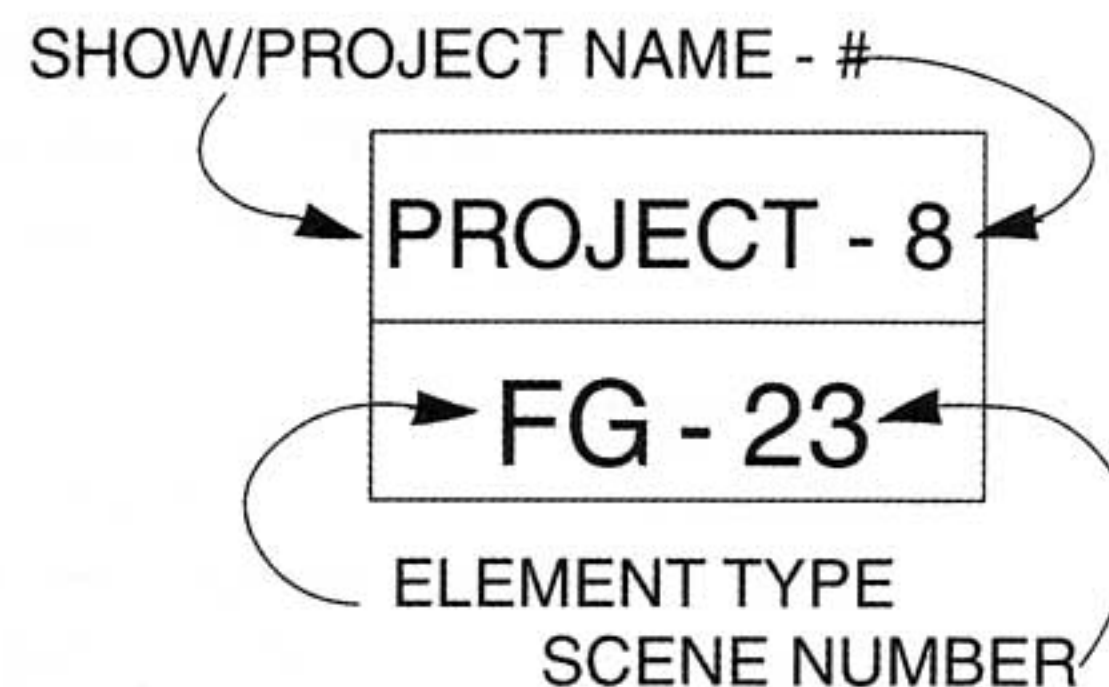
Show Name	—	Show Number
Element Type	—	Scene Number

Element and Number
Production Number
Scene Number
Show Name

Some show names are not always possible to print it all in such a small box, so abbreviations are commonly used. A few examples of this that come to mind are shows I have worked on, such as Nelvana's *Bob and Margaret*, which was shortened to BM, and Nelvana's *Maggie and the Ferocious Beast*, which was reduced to MFB. It just makes sense for the production time.

Many animation schools modify this box format to suit their own grading requirements. Production Name is replaced with Project, Show Number is replaced with Assignment Number. Even in the animation industry, the variations are endless. Whatever the difference, the information shown, describes what each particular drawing is, and what it is used for.

Below is an example of an animation college version of the information box. The top line explains what the show's name is and what episode it is. The second line describes what element is and what is the scene number.



### NOTE:

Get familiar with field guides now. It does not matter what position you have in the animation industry; animation, layout, storyboard, director or cameraman; an understanding of what field guides are and how field guides are labelled, is essential.



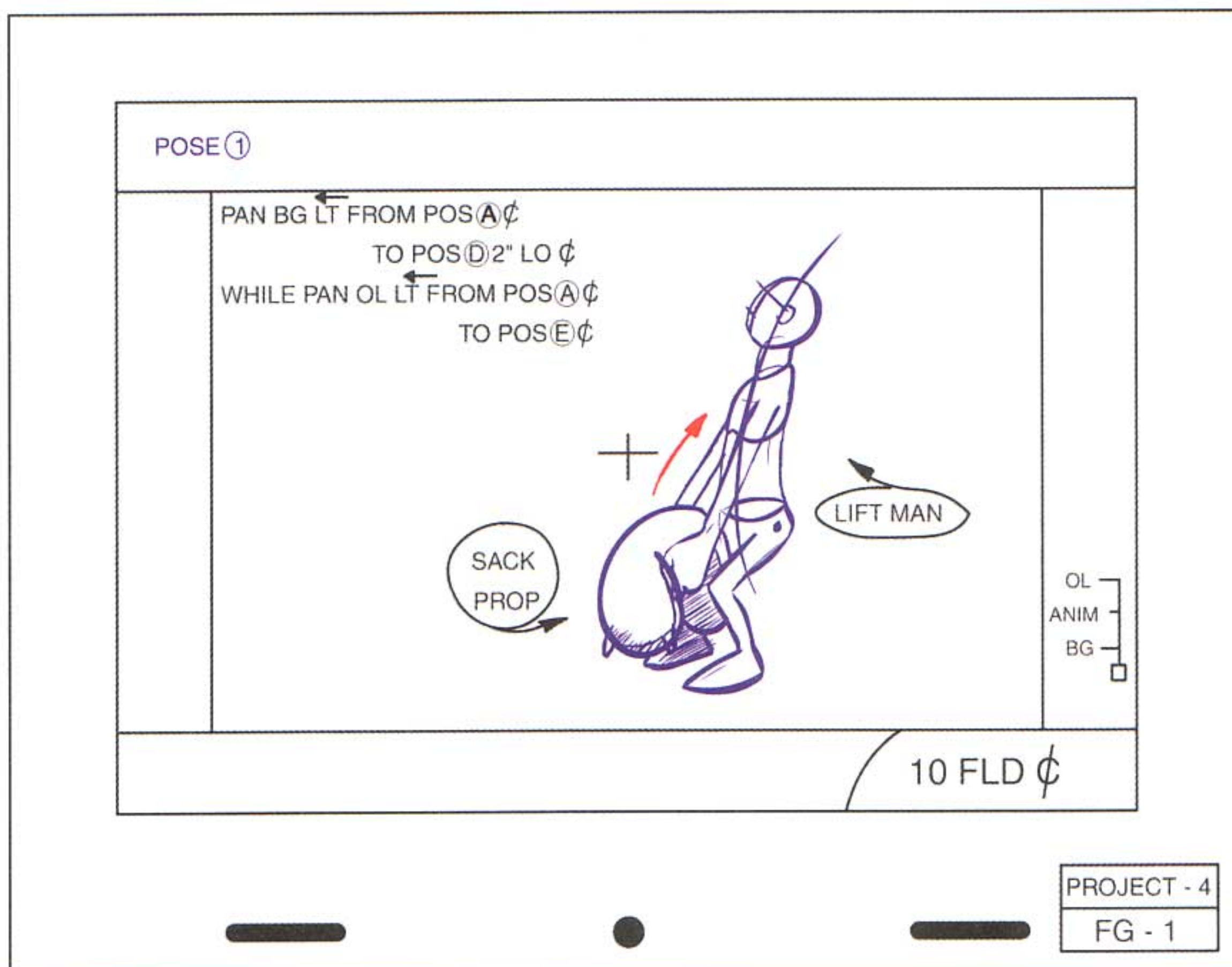
## ADDITIONAL POSES:

All layout poses are drawn in blue. Most studios prefer that all construction lines be shown, while other studios want the poses taken to a cleaned-up state. Either way, the layout artist is creating a suggested guide for the animator.

Field guides often have the first suggested animation pose drawn directly on them. When a storyboard shows more than one panel, more pages need to be added. For poses two and onward, the additional sheets must be labelled to clearly show what pose number it is.

The **POSE** number on the field guide, and subsequent **ANIM** drawings, correspond to the storyboard pose number of the current scene. Depending on the studio, the layout artist may add, or remove, poses to sell the action clearly. The label of the information box changes from **FG** to **ANIM**. This tells the animator that this level is to be used for animation.

On the previous pages we saw how to label the field guide and other technical information. I have reprinted the first field guide for you to look at how the pose was labelled. In the top left hand corner there is a label of **POSE 1**. This tells the animator that on the field guide, that is the first pose of the scene.

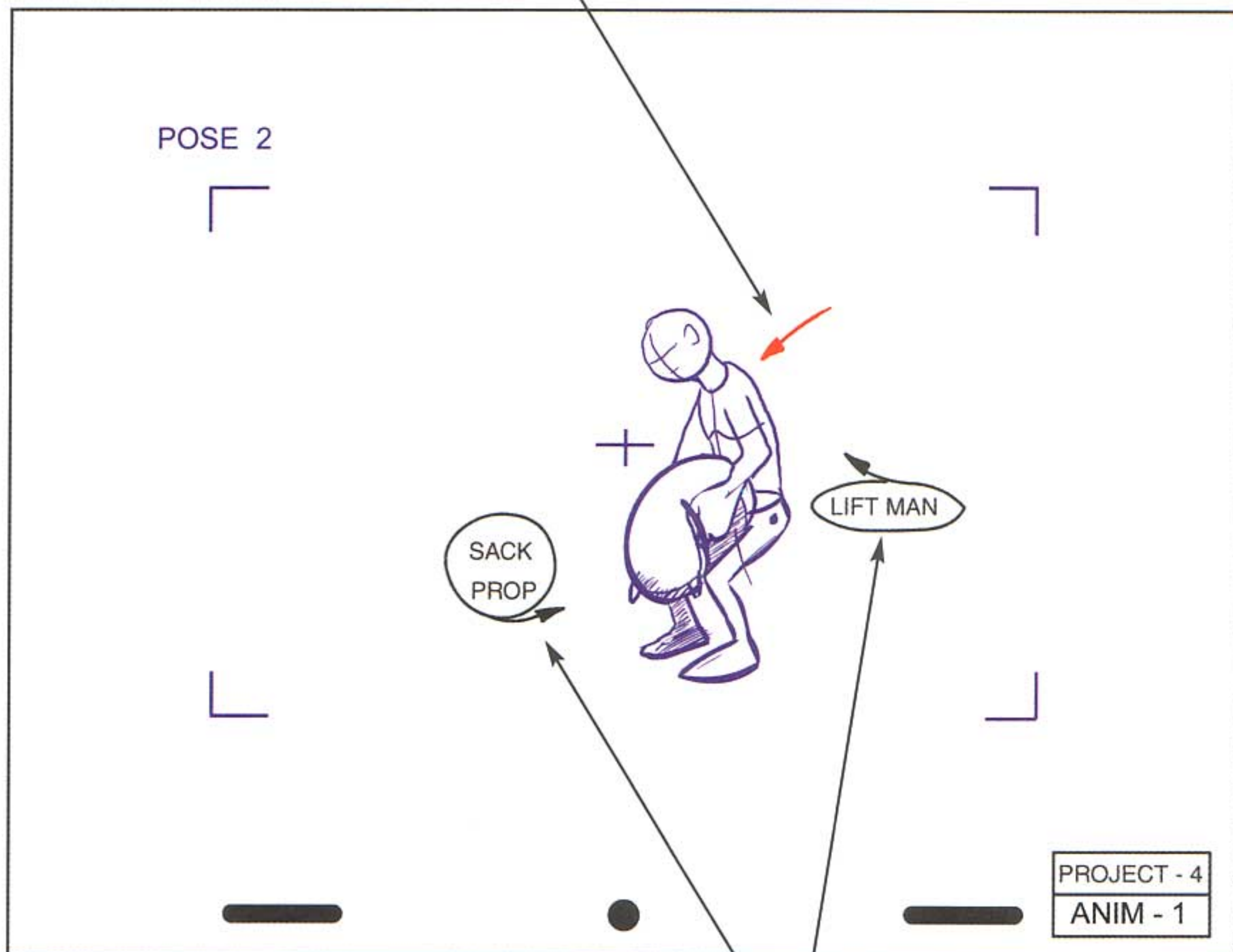




Here is an example of a second layout pose. The field guide has not changed size, or position, so it is not necessary to redraw the pose on this page - only corner marks are required to show the television cut off edge. If the field guide had changed size or position, a new field guide would have to be created using the appropriate colour: black, then red, then blue.

The numbering of the pose changes to correspond to the panel number of the storyboard. The format is: **POSE** followed by the **#** Circled all in **BLUE**.

To call attention to movement, red arrows are drawn near the pose or action. They are primarily used as a guide for the animator.



Another feature of all layout poses is the naming of characters and props. The purpose of these labels is to help the animator quickly find the exact model and prop sheets to animate on model. The names are listed in **BLACK** directly on the page clear from the artwork.



## **EXERCISES:** CHAPTER 8 Graticule, Field Guide and Labelling

For this section, and for most of the remaining exercises in this book, a graticule is necessary. I suggest purchasing a professional graticule from any one of the major animation suppliers or education institutes that teach animation. For now you could photocopy and enlarge the graticule shown at the beginning of this chapter 156% then by another 156%, to fit onto an 11" by 17" page. Although it is not exact, it will serve as a temporary tool.

Use several blank 11" by 17" sheets of paper turned on their side, or standard sheets of punched animation paper, for those that have an animation disk. Use an HB pencil, blue pencil, and red pencil for these exercises.

**SET UP**, if you do not have an animation disk and punched animation paper:

Tape the graticule to a window. Tape a blank sheet of paper on top of the graticule, this will allow you to clearly see the grid lines through the blank paper. A light table is an alternate method to set this up.

For BOTH those with, or without an animation disk, try these three assignments:

1. Based on the **TV CUT OFF** section of this chapter, create four field guides using an HB pencil. The fields are 12, 11, 10, 9, 8 and 7. Remember that the field size is the outside edge that matches the numbers on the graticule. The Television Cut Off is the box that is a determined distance inside the outer field edge, as explained in this chapters field guide chart.

2. On the above 11 Field Guide, label the bottom right corner with an information box that has three layers to show the following information: **FG**, **SHOW-01** and **POSE-1** respectfully.

Using a blue pencil, draw the a dog on the **11 Field Guide** so that it sits on the **7 SOUTH** line of the graticule and is facing with nose towards the **WEST**.

For those who have an animation and punched animation paper:

3. For those who have an animation disk and animation paper, place on the bottom pegs, two sheets of animation paper, side by side and so each sheet shares that only one square peg. From the top to the bottom of the seam of the two sheets, apply tape. Flip the paper over and trim off all but a quarter of an inch or half a millimetre.

Label the pegs starting from the left **POS A** (START and line) and on the right **POS B** (STOP and line). Create a 12 Field Guide at POS A and a second field guide at POS B.

**Note:** POS B field guide is a different colour than POS A.





## CAMERA MOVES:

Track  
Truck: In or Out  
Special Track and Truck: Spiral  
Pan: Horizontal  
Calculating Pan Movement  
Repeat Pan  
Pan: Swish or Zip  
Pan: Vertical  
Pan: Diagonal  
Pan: Warp  
Slow In / Slow Out  
Pan Fold  
Camera Shake  
Combinations of Camera Moves

## **CAMERA MOVES:**

As you have read, the artistic side of the background layout artist, is built upon many fundamentals. The technical side of the job is equivalent to the unsung hero of your abilities. If it works well, you will never hear a word from anyone. If it is wrong, it could cause a cascade of setbacks in many ensuing departments. Your supervisor catches most problems, but occasionally a mistake may slip by. If it does, remember, the chain of blame follows the director, supervisor and then ends with you. Learn the technical.

### **"Don't computers do all this work?"**

Be honest. How many times have you thought or even heard this statement and wanted to just scream? For most of us in the industry, it is a recurring question that sends a look of frustration over our faces. If we think of a chef, do we think of a person in a white coat and hat putting a frozen meal in a microwave? If we think of an athlete, do we think of a person sitting on a couch eating chips, drinking pop and watching a football game? From experience, we know this is not the case. The media focus on the advances in computer animation fuelled the public's belief that no one draws with pencils anymore, thus creating the myth it is "only done by computers."

I was asked this one day by several of my students. To dispel this misconception in class, I assigned a complex drawing task that had to be done on a computer program, they had never seen or used before. It had to be completed by the end of the class. No program training was given to the students. Then I left the room.

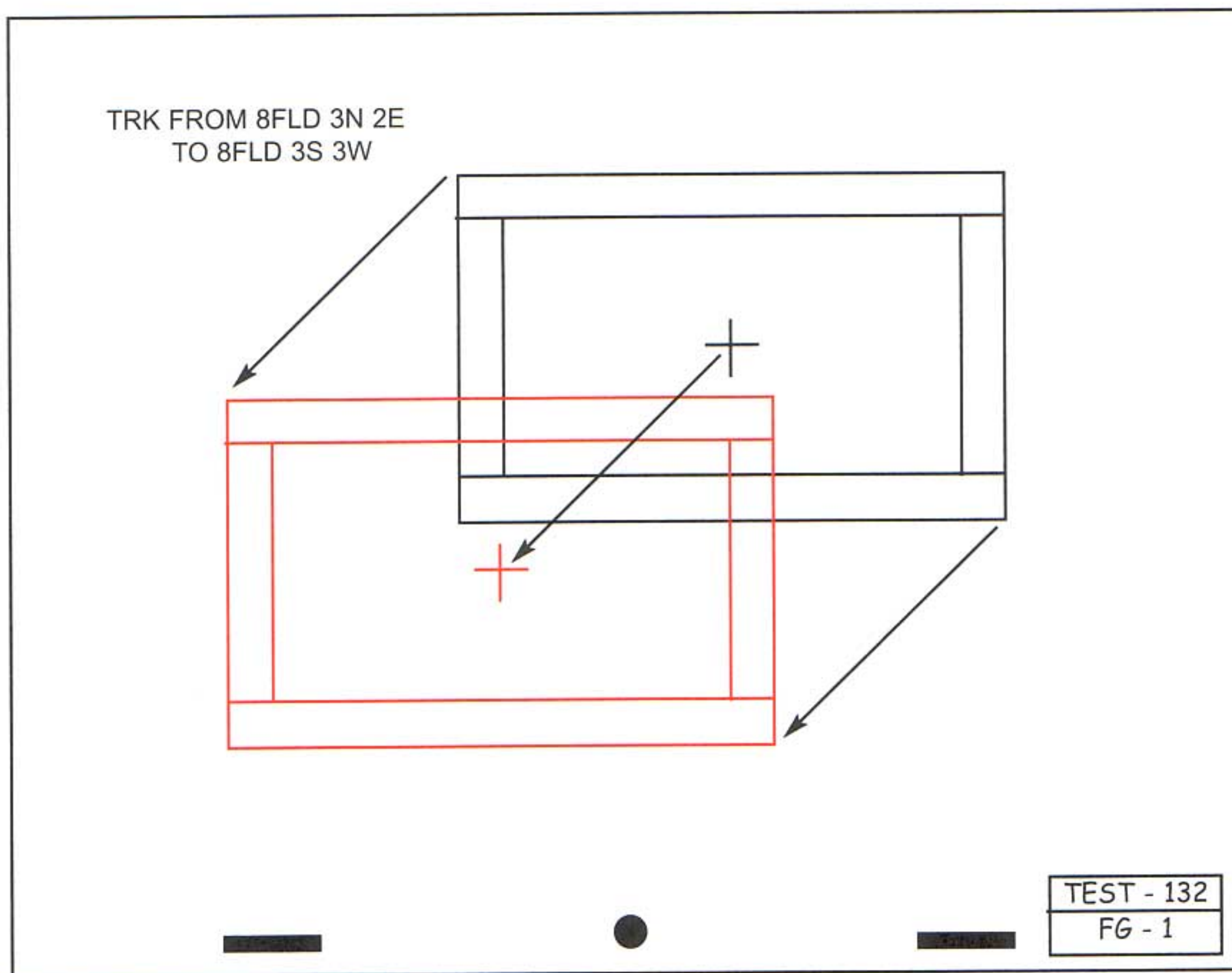
Upon my return, I was not at all surprised by the lack of progress on the part of many of the students. A few had looked for information through the menu and help files, but most of the students attempted the task unaided. The task was not complete, or even close to being completed. They agreed that the computer is nothing more than a tool, similar to paper and pencil, that required technical knowledge of what, how and why to achieve the task.

Next time you get asked this question, just smile and say, "No."



## TRACK:

A TRACK is when the camera stays within the maximum field size (12FLD) and moves to a different area within. The field size remains the same throughout. If the field size changes this camera move now becomes known as a TRUCK. To move from 8FLD 3N 2E to 8FLD 3S 3W is called a TRACK.



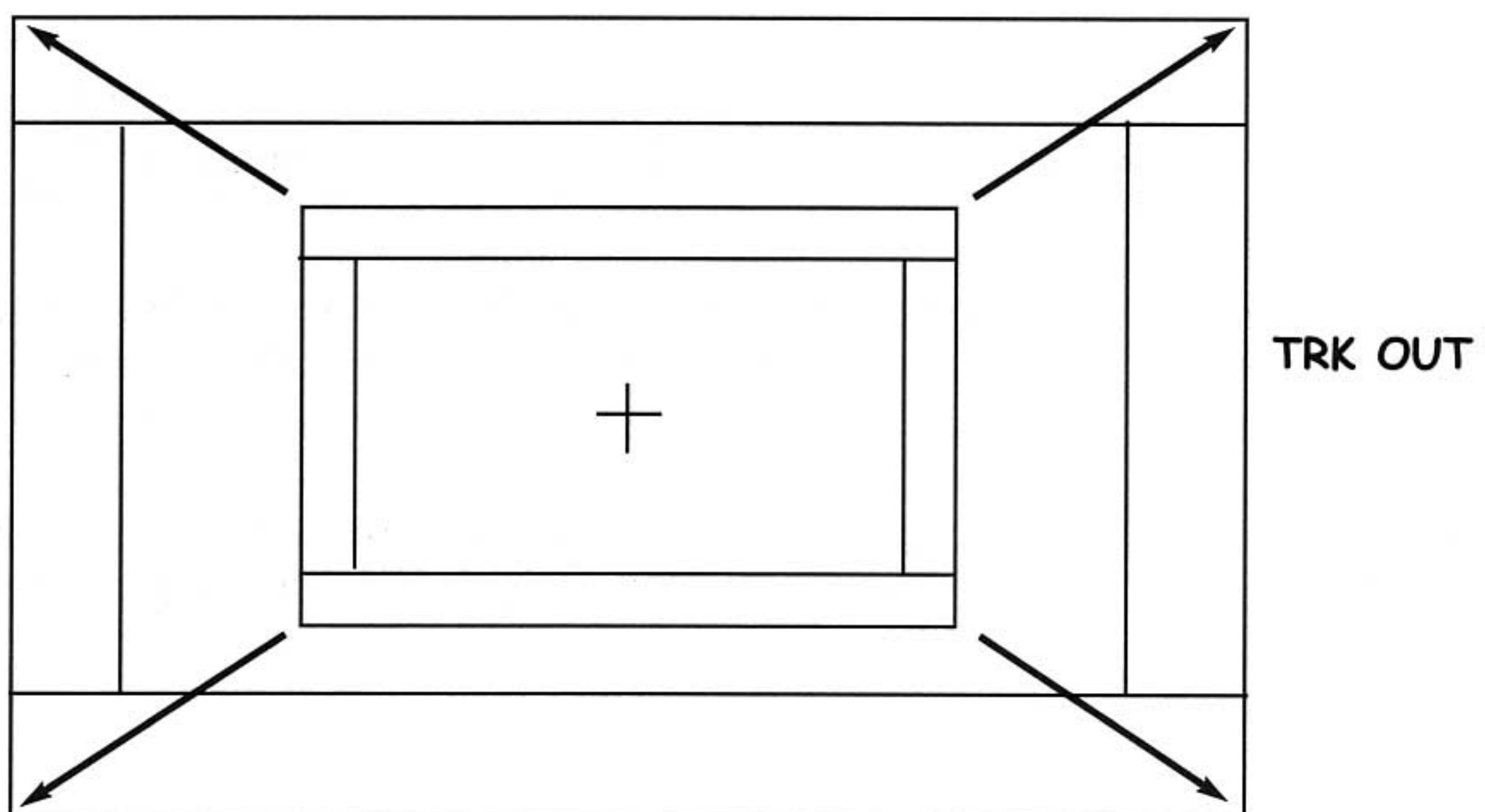
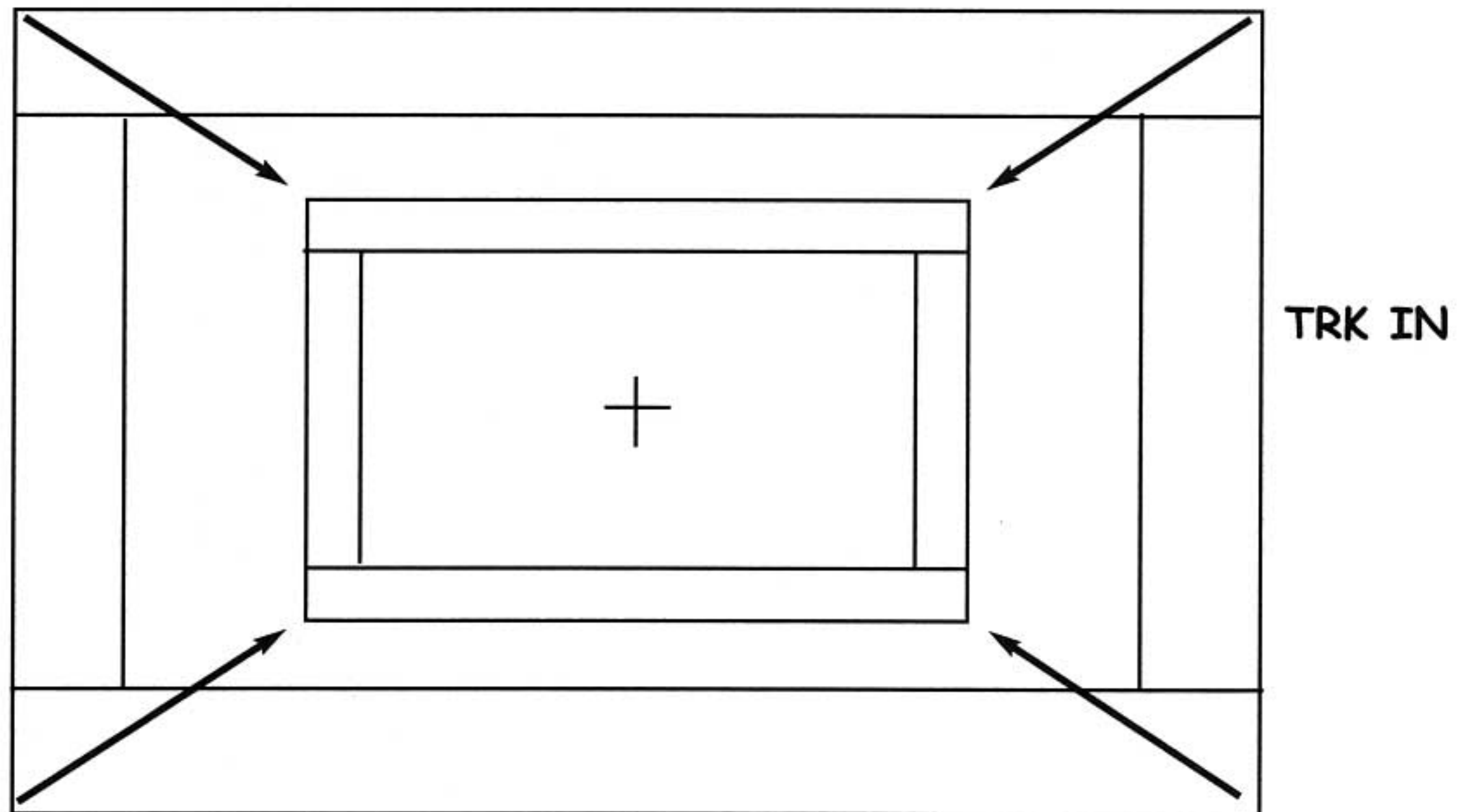
The second field guide is drawn in RED. The lines from the corners and middle cross hairs are drawn in the originating field guide colour; in this case it is BLACK.

**NOTE:** The short form for both TRUCK and TRACK is **TRK**. The use of the words In and OUT after the TRK, TRK IN or TRK OUT, defines this camera move to be a TRUCK.

## TRUCKS: IN OR OUT

An animation TRUCK is the movement towards or away from the artwork as seen through the camera. Much like driving in a truck, as we move towards, or TRUCK IN, the object becomes closer. Similarly, as we move away, or TRUCK OUT, the object becomes further away.

To go from a 12FLD to a 9FLD we must TRUCK IN. To go from 8FLD to 10FLD 1S 1E we must TRUCK OUT. Types of Trucks include: Linear, Spiral and Rotation.

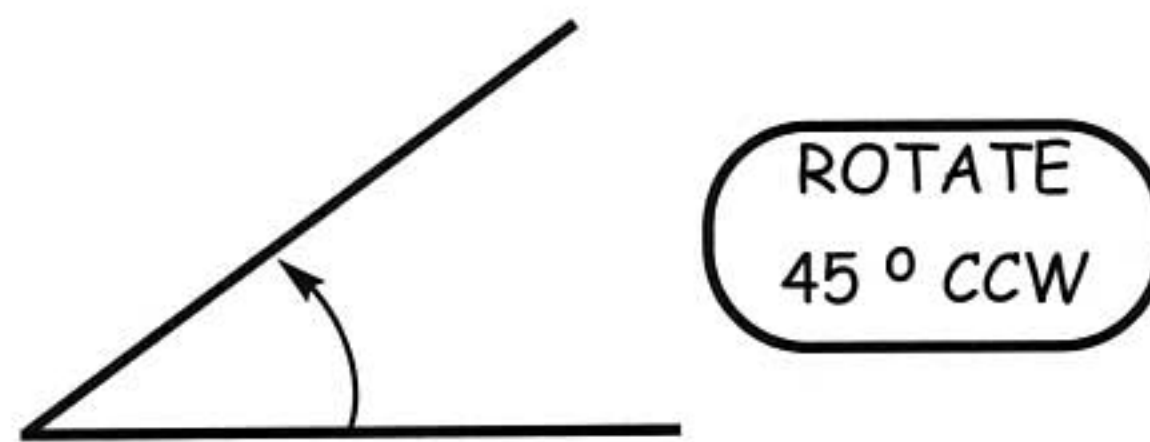




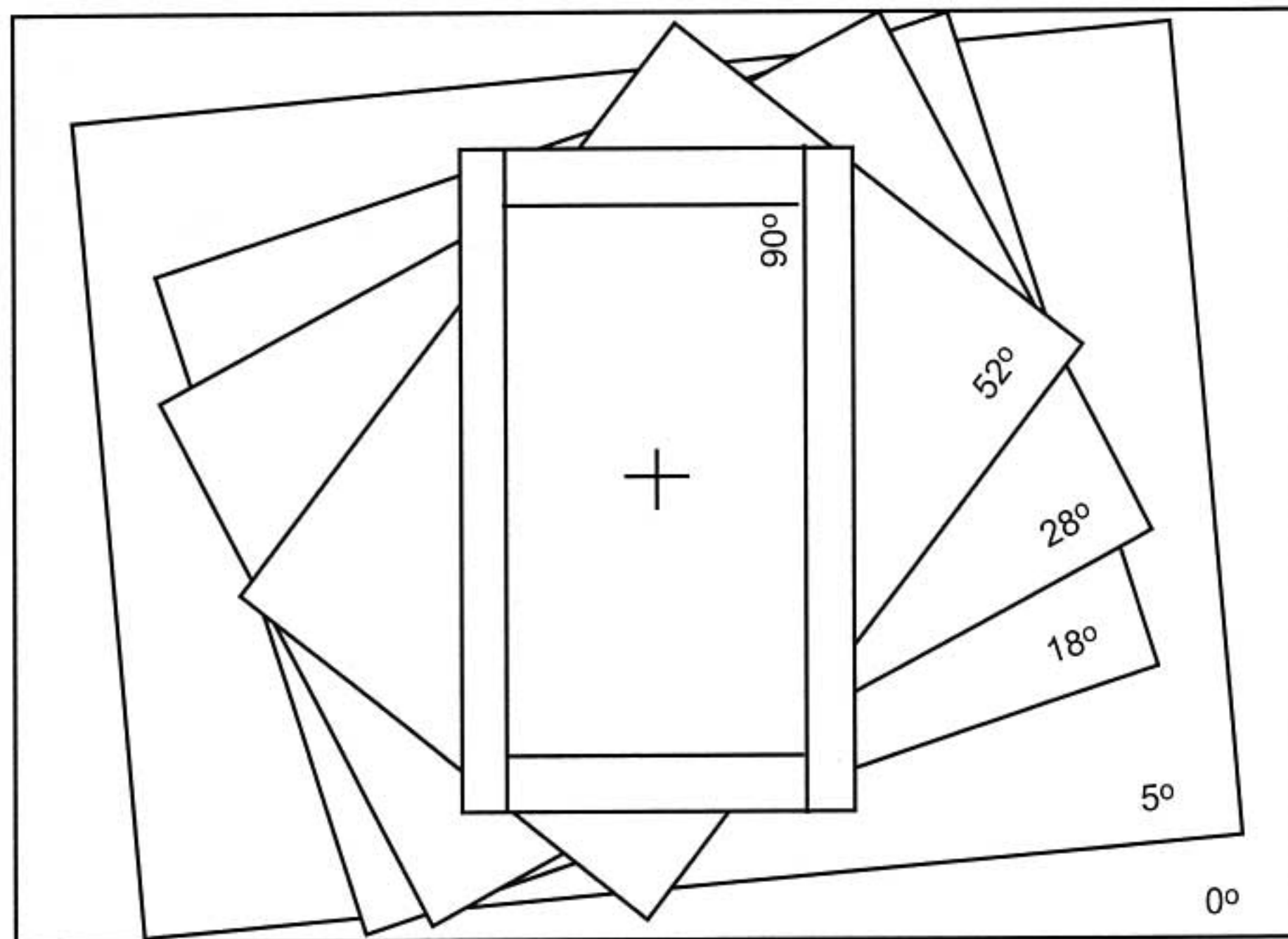
## SPECIAL TRACK AND TRUCKS: SPIRAL

A spiral rotation must take the maximum angle possible by a field guide into consideration for it to successfully work.

The rotation direction is either shown as a clockwise (**CW**) angle or a counter-clockwise (**CCW**). It indicates the degree that the field guide has turned for that particular scene. The information is only shown on the field guide. To date I have yet to see it on the actual background or other elements. The direction contains the degree and direction of the angle with the word rotate. ie. ROTATE 45° CCW.



There are limits to the field size the paper can hold without going off the paper. Below is a reproduction of a fantastic field guide collection I have used for over eight years. The field guides are shown with the maximum angle shown in the guide corner.



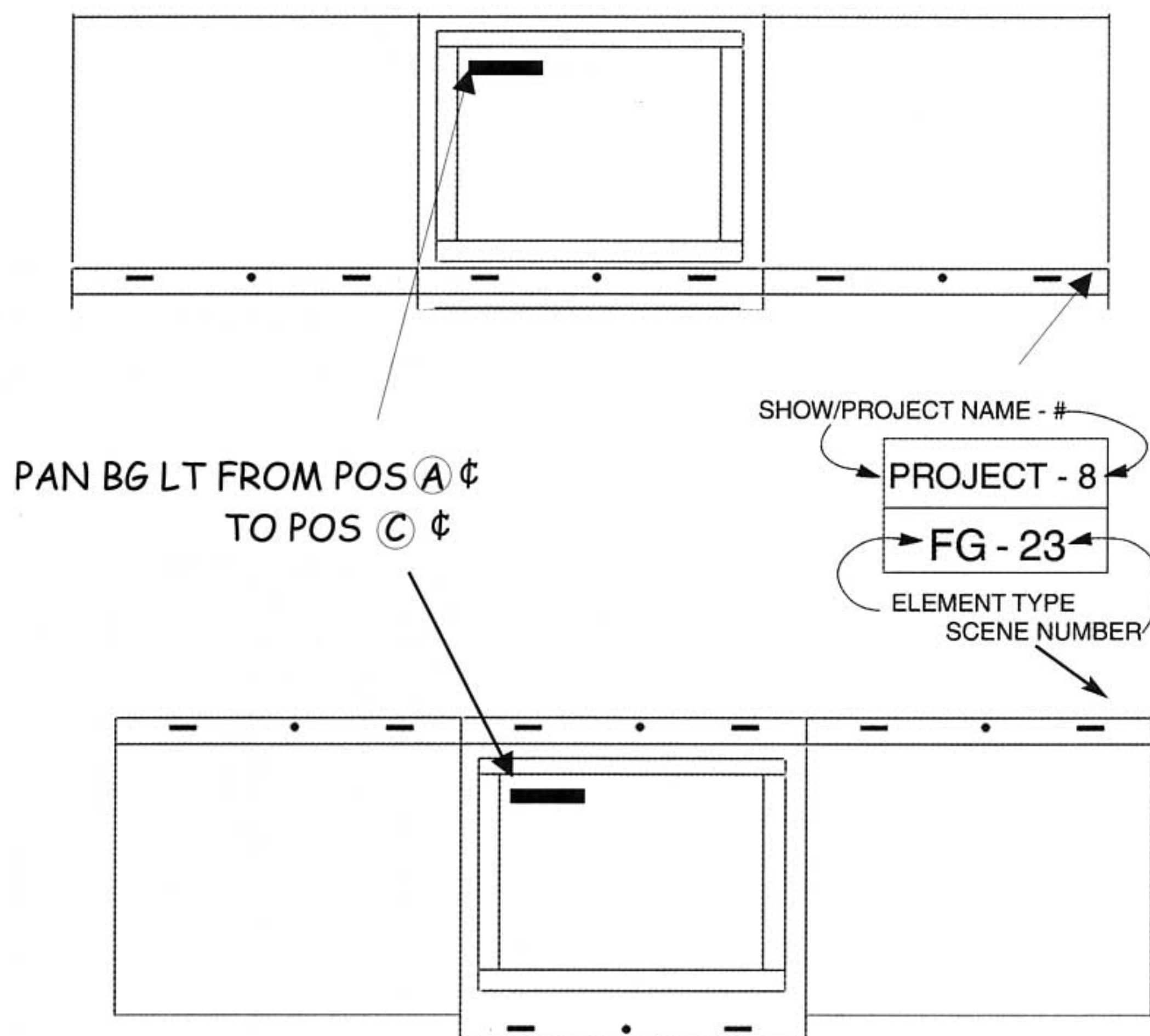
## PAN: HORIZONTAL

For this and the following sections on pans, please refer back to the chapter on Graticules, Field Guides and Labelling.

From studio to studio, a background layout pan varies as to how it is set up. Most studios use only bottom pegs, which means the animation holes are on the bottom of the paper. Some studios use both top and bottom pegs.

A horizontal pan with pegs holes on top still has the text facing the same direction as that of a bottom pegged page. The information box would go on the top right corner of the pan background as shown below.

### BOTTOM PEGGED



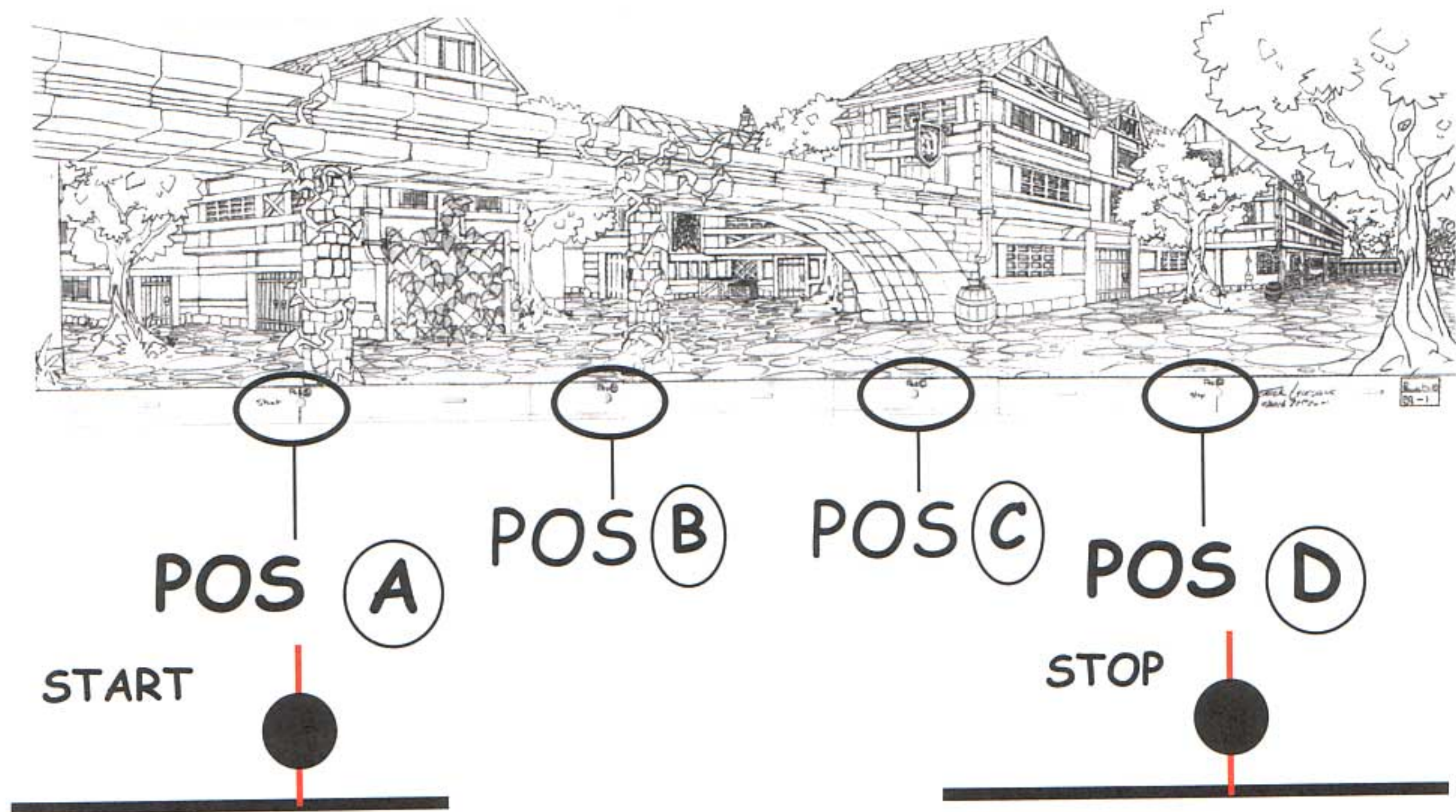
### TOP PEGGED



The PAN information shown on the field guide, explains what direction the pan will move, where it starts and where it ends. This information is doubled by placing a RED line through the centre of the start and end position, with the appropriate words, in black, START and STOP on the left hand side of the line.

All round registration peg hole labels start on the LEFT hand side with the letter **A**, and progress right with **B**, **C**, and **D** until there are no more round peg holes.

Below is an example of a horizontal pan background created by one of my students, Erick Levesque. As you can see it spans from position A on the left to position D on the right, making this an **A to D Horizontal Pan**. The START position is marked to the left of POS A and the STOP is marked just to the left of POS D.



The information on any pan background, element, or field guide, is very important. Once the layout department is finished creating the artwork, the animator gets a copy of the field guide and key pose suggestions to animate. The background painter gets the background and other elements for painting. The special effects animators get a copy of the field guide and special effect keys for animation. The digital ink and paint department, (or cel painters), colour the animation. When all of these other departments complete their portion of the work, the compositor assembles all the material together, exactly as the layout directions dictate. If a label or level is incorrect, the result can be a costly delay in production. For all other pans, this information remains true.



## CALCULATING PAN MOVEMENT:

As an animation instructor, I have found that asking art students to do math is much like standing in an elevator going from the lobby up to the thirtieth floor: they just face the front, do not make a sound and stare up at the ceiling with a glazed look over their eyes.

I would like to say that I have a cure for this problem. I do not, so let us continue. Whether completed in a traditional manner or by means of a computer program, certain pan calculations must be made to ensure the speed of the artwork moves in synchronization with the animation.

As a recap of the peg bar and ruler, remember the distance that the pan will move is measured in inches. The distance between each square peg to round peg is four inches. From one round centre peg to the next round centre peg is eight inches.

The animation exposure sheet is a time frame guide. The animator and layout artist use the exposure sheet to control action, events, camera moves, and timing of a scene. The time is measured in frames at 24 frames per second. The exposure sheet dictates the number of frames that a pan requires.

FOWLER CARTOONING INK		PRODUCTION TALL TALES				SCENE 1		PAGE 1 / 2		
		ANIMATOR I.C.CLEARLY				FOOTAGE 2.5'				
ACTION NOTES	DIALOG	FRAMES			ROY	WALT	<del>BG</del>	FRAMES	CAMERA NOTES	
			4	3	2	1	BG			
<div>BLINK</div> <div>X</div> <div>WAVE</div> <div>HOLD</div> <div>ANTIC</div> <div>X</div> <div>WAVE</div>	<div>M</div> <div>E</div>	1			R - 1	W - 1	BG	1	10 FLD C	
		2							2	TRUCK OUT
		3					3		3	
		4							4	
		5					5		5	
		6							6	
		7					W - 7		7	
		8							8	
		9					9		9	
		10							10	
		1					11		1	
		2							2	
		3							3	
		4							4	12 FLD C
		5					W - 15		5	
		6							6	START PAN
7					17		7			
8							8			

Time is one component of the equation. The second is distance, which is the total length of the PAN in inches that must be covered. The third factor is only used when a character is moving on the spot in the scene.



**Calculating the Pan Layout** will be the first portion. The character and background calculations will follow. This is important to understand, but rarely calculated by the layout artist.

To calculate the speed of any of these elements, BG, OL, OL/UL, or HC, fill in the calculation chart below. This method is for shooting or filming on ones: one picture every frame.

The information needed is the:

- Number of total fields in length is the pan.
- Inches between a square to square pegs. The answer is eight.
- Total number of frames used converted to seconds.
- Number of frames in one second. The answer is twenty-four.

The first part of the equation calculates the total inches of the pan to be used.

<b>NUMBER OF TOTAL FIELDS:</b>	<b>4</b>
<b>INCHES FROM SQPeg to SQPeg:</b>	<b>x8"</b>
<hr/>	
<b>Total inches of the PAN:</b>	<b>32"</b>

The BG pan will move for a total of **32 inches**. This is used in the next calculation.

The second part of the equation calculates the distance that the pan must move for each frame.

<b>TOTAL SECONDS REQUIRED:</b>	<b>5</b>
<b>NUMBER OF FRAMES PER SECOND:</b>	<b>x 24 FRAMES</b>
<hr/>	
<b>Total number of frames for the pan move:</b>	<b>120 FRAMES</b>
<b>TOTAL INCHES OF THE PAN:</b>	<b>32"</b>
<b>TOTAL FRAMES REQUIRED FOR PAN:</b>	<b>/120 FRAMES</b>
<hr/>	
<b>Total movement per frame in inches:</b>	<b>0.267 (Rounded up to 0.27)</b>

Round off the increments to the nearest 100th to get distance the BG would move each frame, which is **27/100** of an inch per frame.

## Character and Background Pan Calculation:

This calculation involves a character walk cycle on a background. How much of the background is required, and at what rate should it move?

The information needed is:

- a) Distance of one stride on the ground, measured from the front heel to the back heel of the foot (some studios use front heel to back toe).
- b) Number of steps
- c) Time: Frames used and seconds.
- d) Number of frames in one second.
- e) Total inches of pan required

To measure the **DISTANCE** of the character's stride in inches, start at the heel of the front foot to the toe of the back foot. An example measurement is four inches.

The exposure sheet tells us the **TIME FRAME** of the walk is 5 seconds or 120 frames.

We have predetermined that the character will have a 12-frame cycle. This means two steps, a left stride and a right stride, are taken every twelve frames. One stride is accomplished every six frames.

<b>DISTANCE OF ONE STEP:</b>	<b>4"</b>
<b>AMOUNT OF FRAMES:</b>	<b>120</b>
<b>TOTAL SECONDS:</b>	<b>5</b>
<b>ONE STRIDE EVERY:</b>	<b>6 FRAMES</b>

The first section of the equation calculates the **AMOUNT OF STEPS** the character will take in the allotted **AMOUNT OF FRAMES**.

<b>AMOUNT OF FRAMES:</b>	<b>120</b>
<b>ONE STRIDE EVERY:</b>	<b>/ 6 FRAMES</b>
<hr/>	
<b>Total AMOUNT OF STEPS:</b>	<b>20</b>

This character would take **20 steps in a 120-frame scene**. This is used in the second calculation.



The second part of the equation calculates the total inches of the pan required.

<b>DISTANCE OF ONE STEP:</b>	<b>4"</b>
<b>AMOUNT OF STEPS:</b>	<b>x20</b>
<hr/>	
<b>Total inches required of the PAN:</b>	<b>80"</b>

The BG would then move a total of 80"(inches). This is used in the third calculation.

<b>TOTAL INCHES REQUIRED OF THE PAN:</b>	<b>80"</b>
<b>TOTAL FRAMES REQUIRED FOR PAN:</b>	<b>/120 FRAMES</b>
<hr/>	
<b>Total movement per frame in inches:</b>	<b>0.667 (Rounded up to 0.67)</b>

Round off the increments to the nearest 100th to get distance the BG would move each frame, which is **67/100** of an inch per frame.

Yes, I must admit it is a long drawn out process, but it is good to know just the same. The examples above are based upon filming at 24 frames per second as your timing.

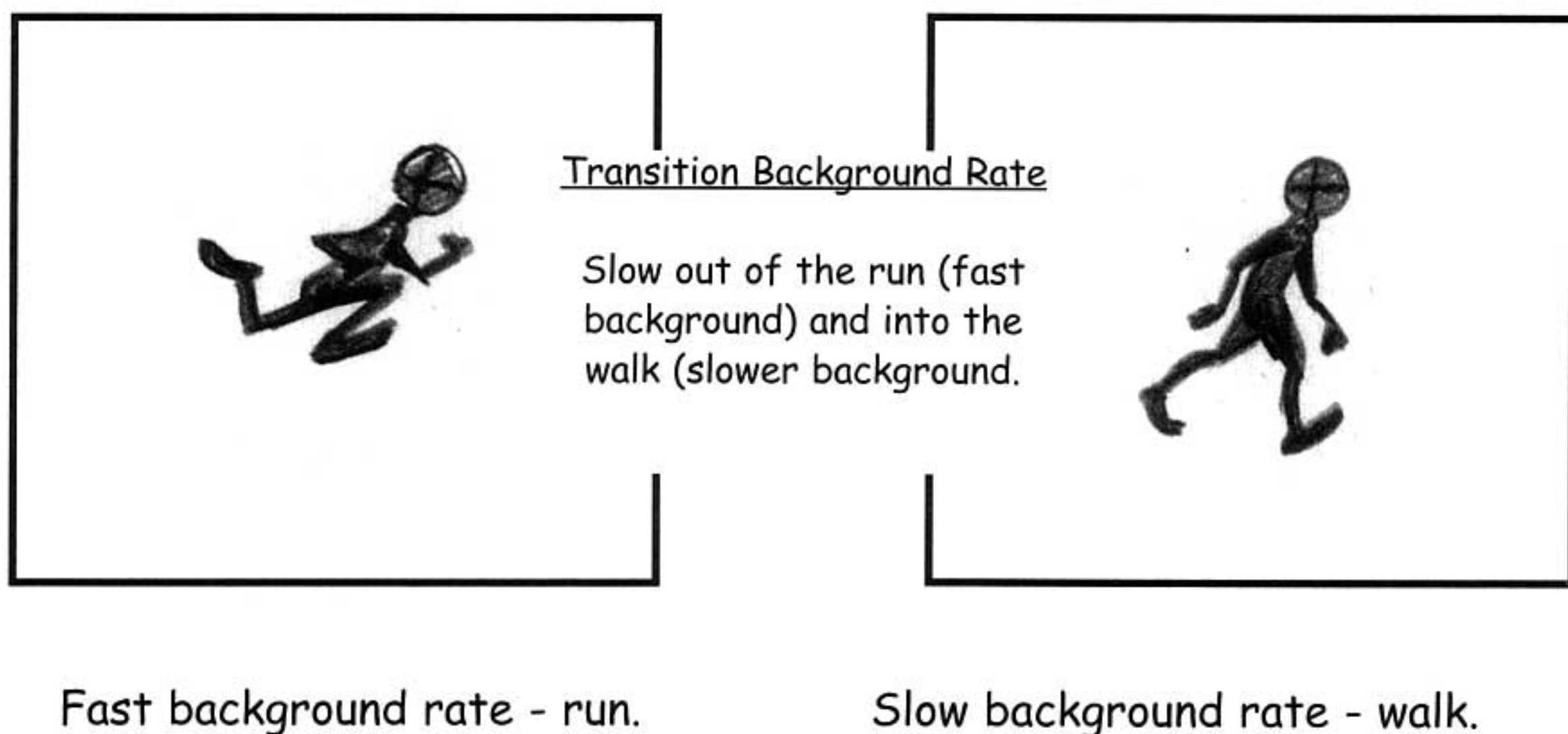
Admittedly, I have only had to calculate the above information a handful of times. My layout character poses were cleaned up and sent overseas as animation keys or starting drawings. This is very rare in feature film and only occasionally will it happen for Saturday morning cartoons. In the majority of studio settings, it is pointless to plan these calculations at the layout level until the animation has been completed. Also, the ease at which various compositing program perform this task, the need is greatly reduced for pan calculation to be done at any level. The compositor, the person that combines all the animation levels together, has acquired this duty.

The layout artist must still understand the principles and theory behind pan calculation to be able to effectively estimate the background required. Different layout field guide directions can be used to cheat the results such as the use of a repeat pan and the term, "Repeat as necessary".

## SLOW IN/OUT:

Slow in or slow out, cushion in or cushion out, and ease in or ease out are terms used in both animation and layout. In animation the terms refer to favouring a key drawing after an action starts, or before it ends. This easing in and out of a drawing is used to demonstrate believability in the drawn action. A background layout slow in to a scene or a slow out of a scene, provides a gentle resolve or start to any camera movement in conjunction with the animation movement in a scene.

The best example I can think of that most people in North America have seen is Fred Flintstone and Barney Rubble running. As the characters run, the background moves at a pace complimentary to their speed. When Fred and Barney decide to switch from a run to a walk, the background cannot continue at the same rate as the run, so it is adjusted to the new walking pace. This transition from the fast run rate of the background to the walk speed is known as a slow out.



This information is always included on the storyboard. The time of this slow in, or slow out, is dictated by the time allotted on the exposure sheet.

It is difficult to calculate, unless you are a mathematical wizard, or you are running a compositor program that will automatically do it for you. Sorry, no easy answer here.



## PAN FOLDING:

Nothing threatens an animation student more than to tell them that the long pan background they have treasured creating has to be folded to fit a folder. After all, their background is art and it should be cared for and wrinkle free.

The misconception of, "This is mine, I worked long and hard to create it and how dare you consider such an atrocity", needs to be removed from the budding animation student. I am sorry to be the one to tell you that the studio owns the work you create. That is why they pay you. Furthermore, while your original pencil background may be photocopied to keep on file at the studio, but once the background painter has transferred the detail over to their medium, well, it is either destroyed or filed deep within the studio archives.

It is a cruel reality check for some, but it is the nature of the business.

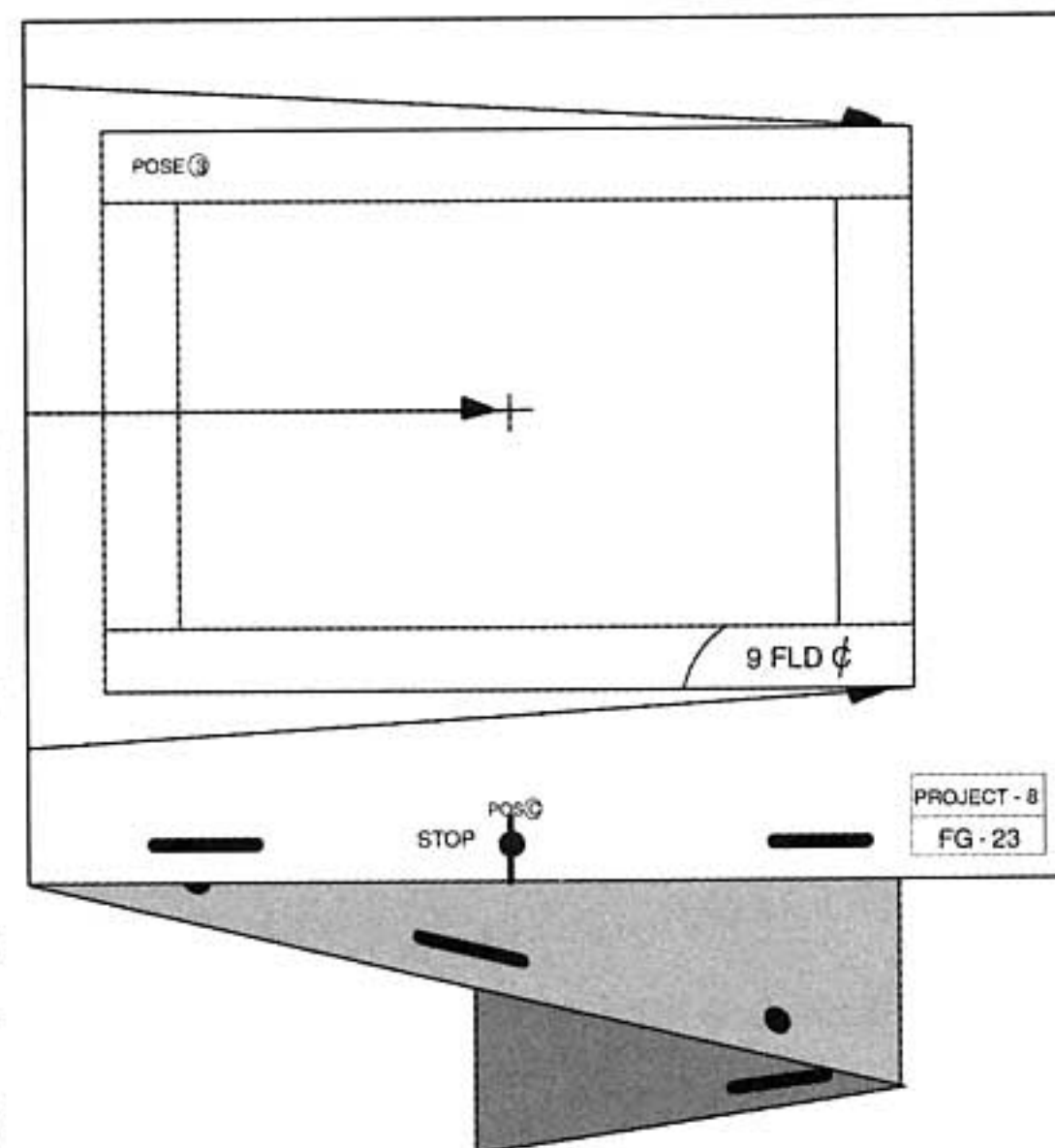
To fold a pan field guide, overlay, or background, understand that it is being done to fit into a scene folder that the animator and background painter will use. The fold should be neat and have the show information facing the top.

Here is a step-by-step process of folding a pan.

1. Start with the paper face up with the last **FULL** three pegs on the **RIGHT** side visible. The element box is in the bottom right corner.

2. In groups of three pegs, fold the pan accordion style **UNDER** and line- up with the top three pegs **SQUARE to ROUND. ROUND to SQUARE.**

3. Continue folding in this manner until completed. The left side will not always have three pegs remaining as seen in this example.





## PAN: VERTICAL

Establishing shots are not always a static one page 12FLD drawing. Any type of camera move that extends past one maximum page field, (three pegs square-round-square), is called a PAN. To create interest, the storyboard artist may have the camera move through an environment. Similar to a horizontal pan, a vertical pan starts the camera at one end of the artwork and travels or pans to the other end.

While a traditional horizontal pan has peg holes on the bottom, a traditional vertical pan has the pegs at the TOP, as seen below.



The use of START and STOP nomenclature is transferred to the top peg to correspond to where the peg holes are on a vertical pan.

### Why use a vertical pan?

Visual interest and variation to the viewer is the best way to answer that question. It is used to establish a setting, or when injected throughout the story, assist in mood creation. Panning from the top of a tall building to the street below is a great example of the use of a vertical pan.

**ROTATION DIRECTION:** To attain a vertical pan, the field guides must be turned or rotated 90°. Any other degree, 91° or 89°, the pan would be called a diagonal pan. For now, think of a vertical pan as being rotated 90° on to its side. The correct labelling notation is shown below.



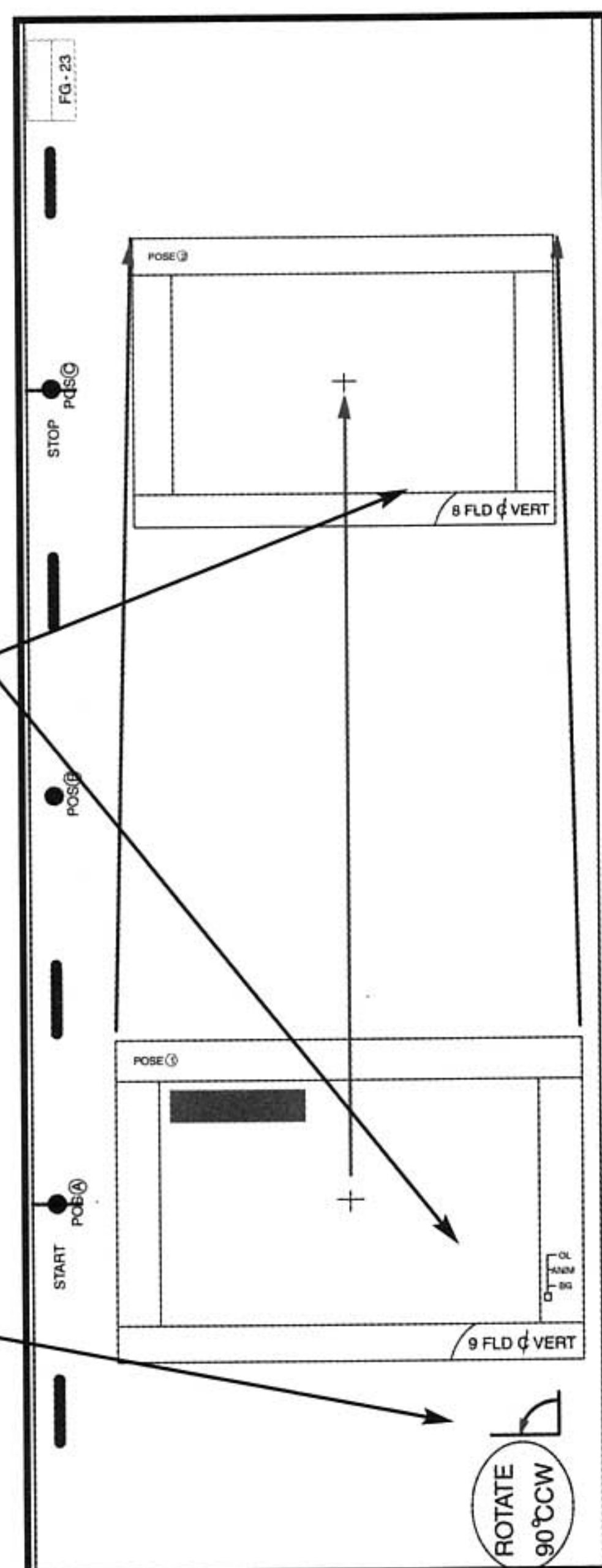


When the artwork is rotated 90° CCW the pegs will now be on the LEFT and the artwork reads **POS A at the bottom**. The information box, which is normally placed in the bottom right corner of the field guide and artwork, is placed on the top right corner for a vertical pan.

Each field guide has the labels adjusted so they can be read when the artwork is rotated, in this example, 90° CCW.

See the previous page for placement and labelling of the pan START and STOP positions.

The camera rotation angle directions are always placed on the field guide portion of any layout. It is rarely placed on other elements such as backgrounds. The format includes how many degrees the camera is to rotate, and in what direction.



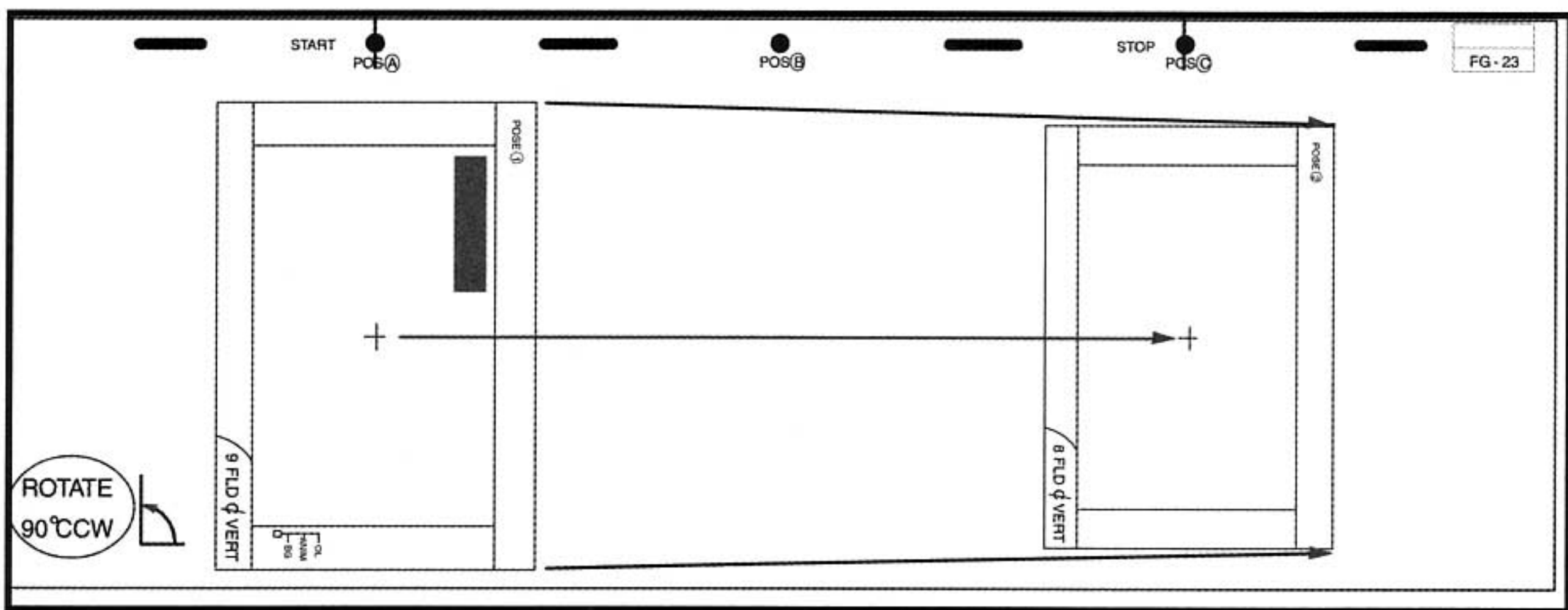
To understand the process of vertical pan creation you must apply your knowledge of a horizontal pan, (It has a START and STOP, each round peg is labelled starting from the left side like a book POS A, POS B... , the information box is placed on the bottom right corner, and on a field guide it states what size, where to move the camera and how many levels of animation there are), by moving that information to the top peg and rotating the entire field guide to fit the page.

In the animated feature industry, pan paper can go to such horrendous extremes as a 32FLD paper. For most television productions the largest size you will see is 16FLD. Personally, I have never had to use anything larger than 16FLD in the years I have worked in layout. For our purposes, the paper size in the following examples will be a more common 12FLD pan paper.

## How do I create a vertical pan field guide?

The best way to answer this question is to go through each of the steps and explain where the required information has to be placed on the field guide.

For a vertical pan, the maximum field size that we can use on a 12FLD pan paper is 9FLD rotated 90°. In the example below **POS A** has a **9FLD & VERT** and at **POS C** has an **8FLD & VERT** field guide.



### Creating a VERTICAL PAN Field Guide:

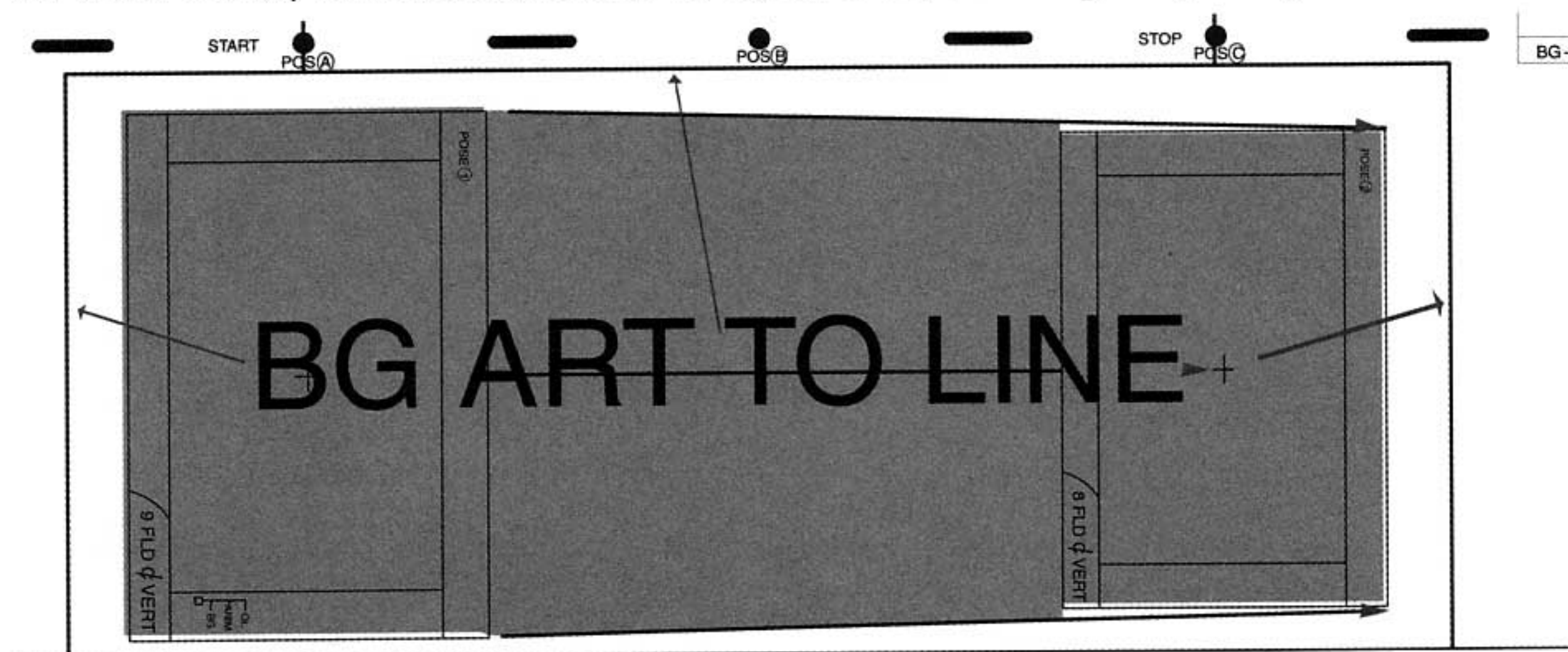
- Line up both the top and bottom animation pegs so that each are at zero.
- On a regular sheet of animation paper, draw a 9-field guide.
- With your graticule still on your animation disk, line up the centre of the 9 field guide to the graticule and turn the paper 90° CW (clockwise). TAPE IT DOWN SECURELY.
- If you have to rip off the paper edges to see the disk pegs, then do so before you place a sheet of pan paper on the TOP pegs. Ensure that the left side of the pan paper, three holes, is directly over the graticule centre.
- With a ruler, trace off the vertical 9 filed guide.
- Repeat the same for the 8-field guide at POS C, as shown above.
- In the first, 9FLD, line colour join the centre, top corners to the other field guide. (As seen in the above example)



Once the field guides are completed, the background art-to-line, or paint line, can be created. The **PAINT LINE IS NOT DRAWN ON THE FIELD GUIDE!** What is a paint line of art-to-line? It is a border designed to indicate where the painting must stop on any background element. Without it, the background painter will think that the entire page must be filled with paint. This is not an efficient use of the background painter's time.

Based on the previous vertical field guide, here is the black art to line superimposed over the field guide for reference only. Please note that at no time will a background contain any indication of a field guide, nor will the field guide ever show indications of the art to line. This example is to show that the background art is two fields greater than the largest used field guide.

The **ART-TO-LINE** is **TWO (2) fields greater than the field guide.** As seen below, this measurement is taken from the largest field guide.



**DO NOT DRAW BG ARTWORK OVER THE REGISTRATION PEGS!**  
**ALWAYS STOP AT THE ART TO LINE or PAINT LINE.**

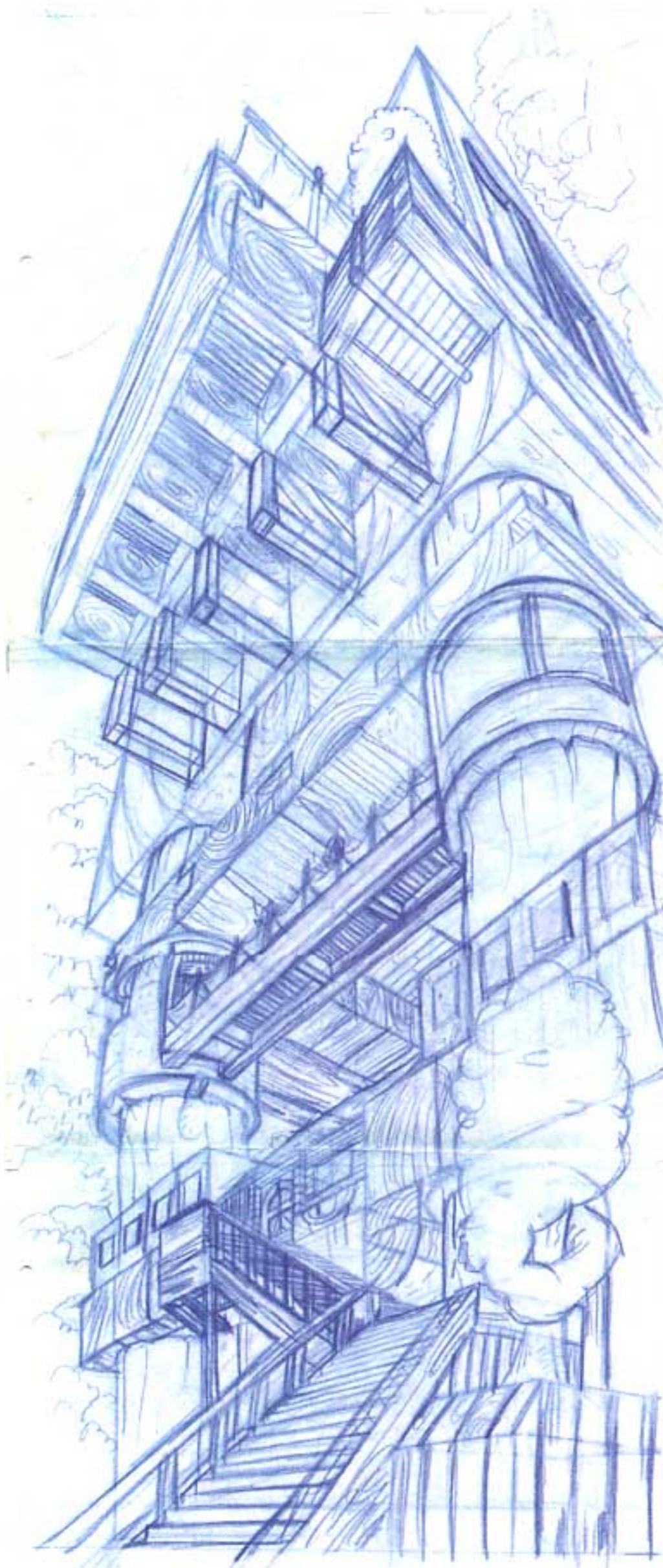
To complete both the vertical field guide and the background artwork sheet, the following information must be added.

- Label the round peg holes from the left to right POS A, POS B and POS C.
- At POS C labelling your STOPPING point.
- At POS A labelling your STARTING point.
- In the top right corner place and label your information box.
- Join start and stop with appropriate arrows and colour, label with proper directions, horizontal with top pegs, on the STARTING FG.



Here is a vertical pan example created by one of my students, Jacques Daigle, using the above information with the requirement that it must be a 2PT perspective building drawing with an introduction of a third point at the top, POS C, for an up shot camera view.

Blue Rough Drawing



Finished Cleaned Linear



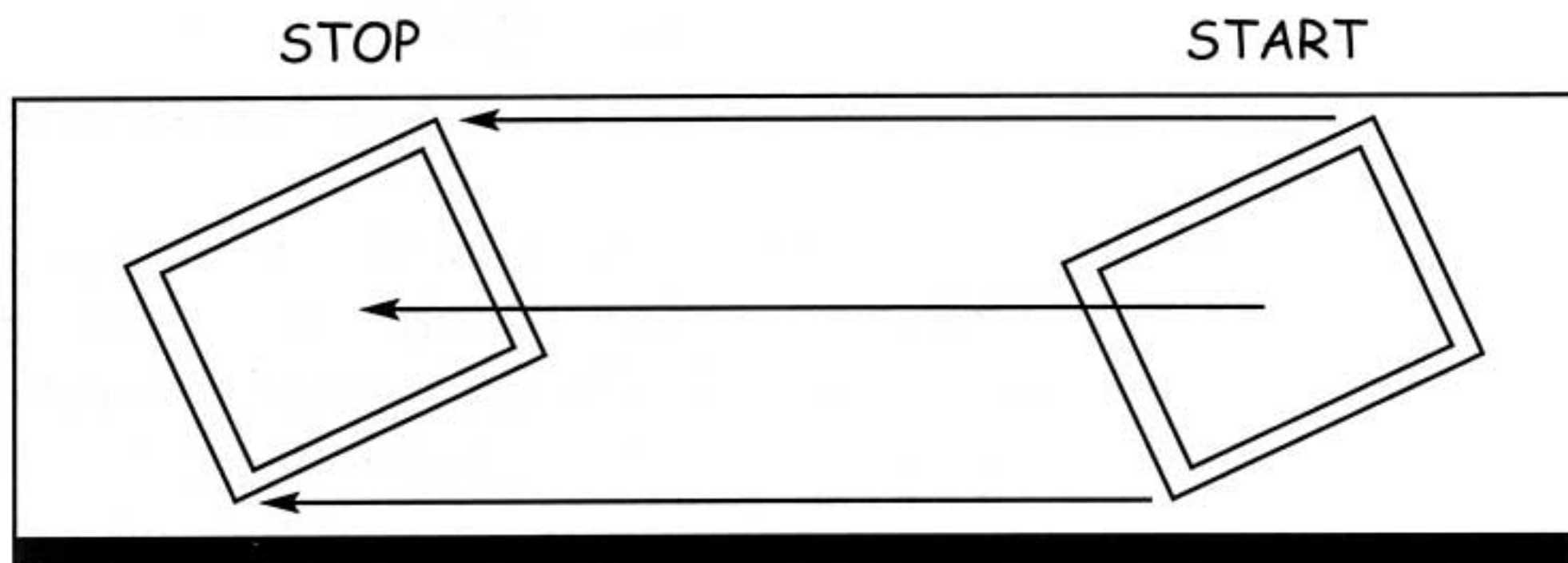
Note the subtle differences from the blue drawing to the finished cleaned up drawing. In a later chapter on thumbnails, we will revisit these drawings to investigate the thought process required to complete the artwork from concept and from storyboards.



## PAN: DIAGONAL

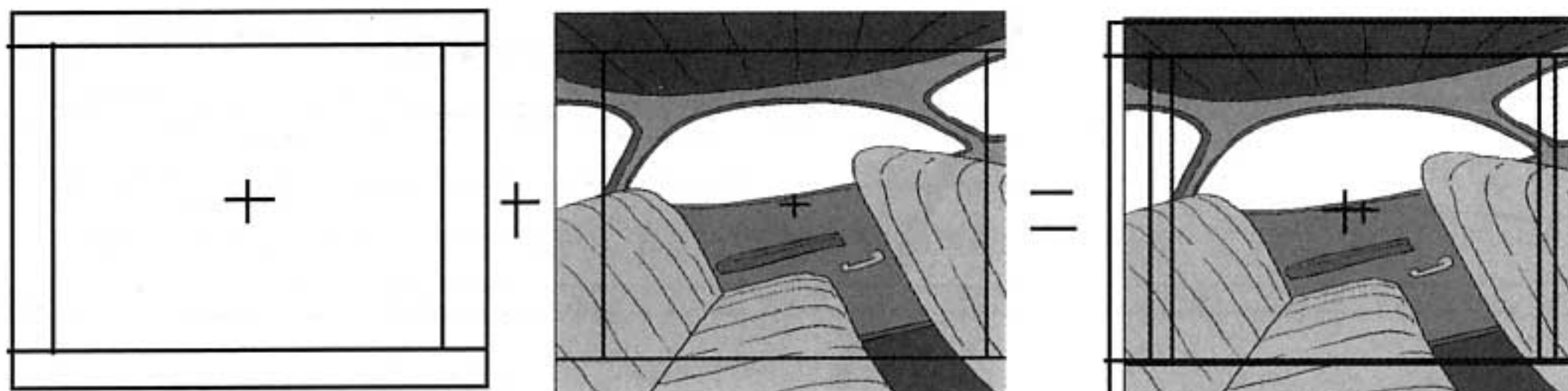
**ROTATION DIRECTION:** To create a diagonal pan, also known as a tilt pan, the field guide must be turned clockwise or counter clockwise up to the maximum angle that it will fit on the page. Please refer back to the section on **Special Track and Trucks: Spiral**. The only angle that is not classified as a diagonal pan is the angle 90°. This is a vertical pan.

For the most part, the background, and background elements, look, and are labelled, exactly as the horizontal pan on bottom pegs. The field guide for a diagonal or tilted pan is the only portion of the artwork that requires special attention. Below is a diagonal field guide that starts at **POS C** (right side) and ends at **POS A** (left side).



### Why use a diagonal pan over a horizontal or a vertical pan?

To portray the desired illusion of motion in a scene, an angled, or tilted background, may be what is required to sell the scene. An example of the view from the inside of a passenger car that is driving down a street is a good place to start.

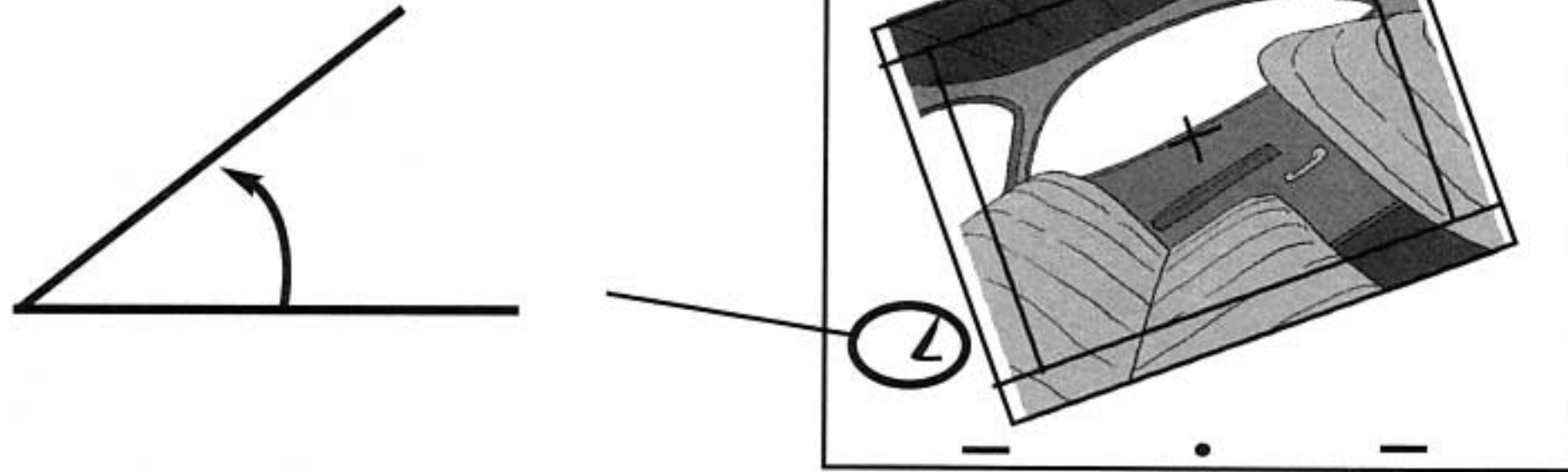


Field Guide + Overlay car interior = Superimposed Example

Field guide superimposed over an overlay element of the interior of a car with windows. **NOTE:** This superimposing is for the example only! The field guide and the overlay are drawn on two separate sheets of paper.

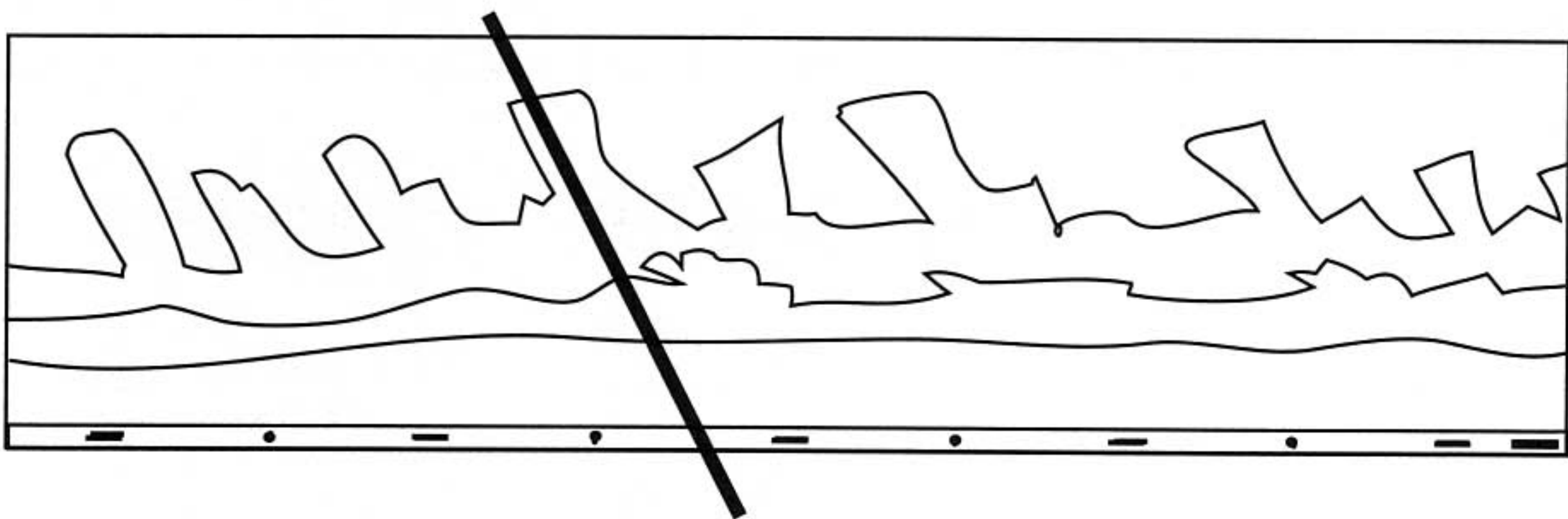
You might ask, "Why not just use a horizontal pan to show that the car is moving?" and very rightfully so; it would indeed work. But we want to give the illusion that the car is actually travelling down a street and the objects that are passing are getting slightly smaller as they go by the window. To do this we rotate the field guide and overlay of car interior an arbitrary degree CCW as shown below.

ROTATE  
20° CCW



The background is drawn out and labelled in the same manner as a horizontal pan. The peg holes are on the bottom with the START and STOP positions and information box clearly labelled. The background artwork can then be drawn at an angled like the field guide or left without an angle.

In the example below, a black line is shown as a guide. The background scenery was created with a lean backward. By angling the artwork, not the background paper, the illusion of speed and depth is pushed one step further when the rotated field guide and overlay element are added, as seen on the next page.

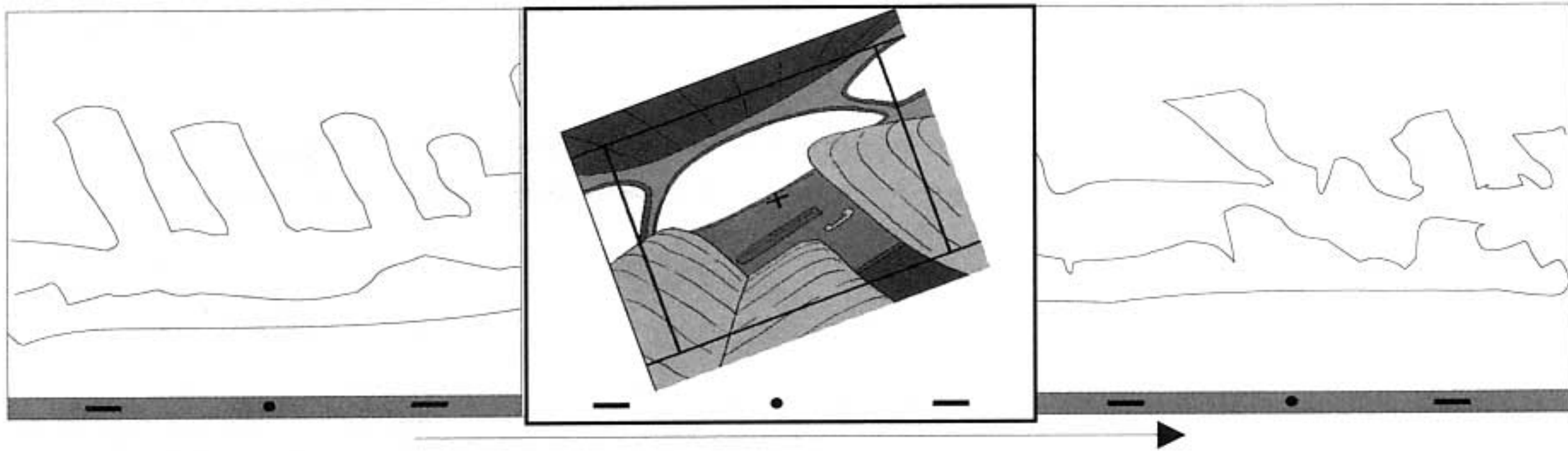


We are attempting to draw a background with the illusion of speed, movement, and depth.

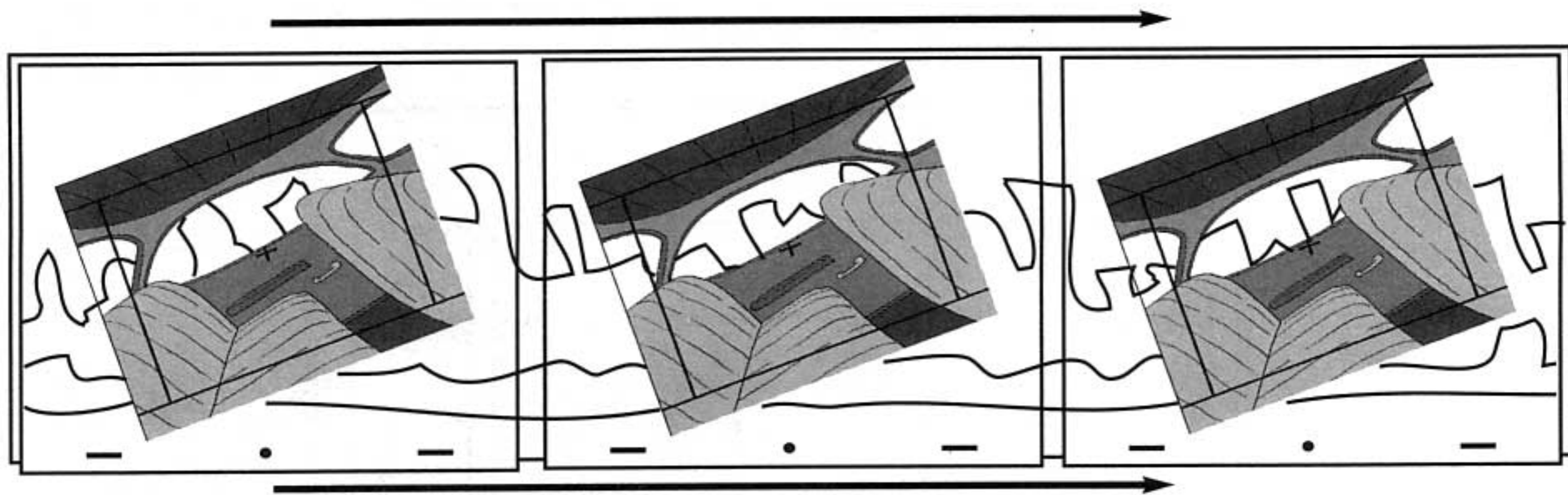


I have added the field guide and overlay elements over the background to check for drawing problems. As our field guide stated, the background starts at the left and moves to the right under the camera, as indicated by the arrow below. This can be confusing. Think of the camera as being fixed in one place and the field guide IS what the camera sees. The other elements move underneath the camera field guide.

The field guide is what the camera sees.



Here is what you would see as the background moved right under the camera. Again, remember that the overlay element and the field guide are superimposed together for this demonstration only.

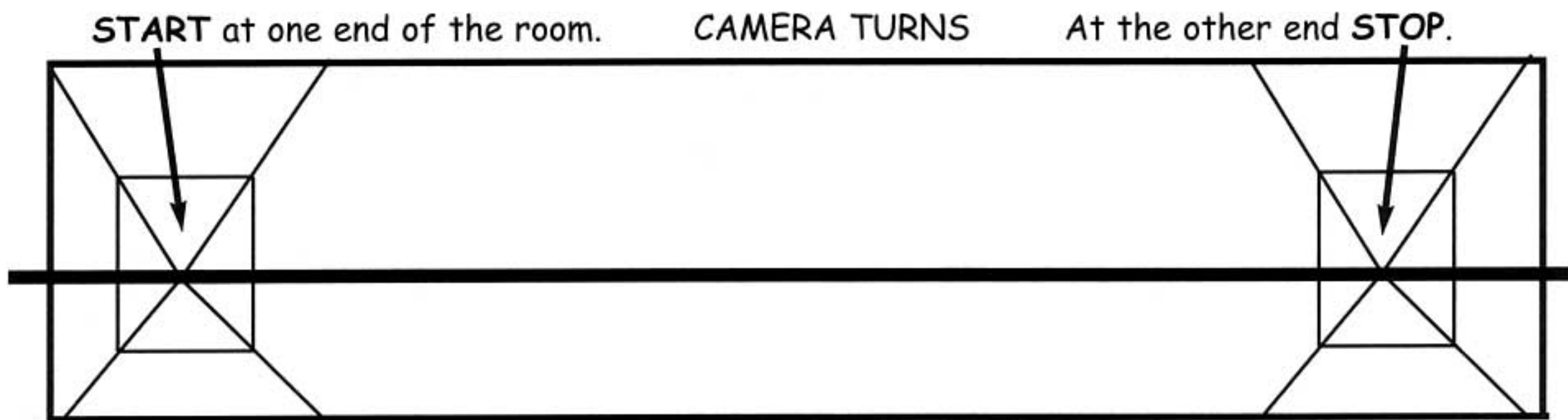


The background appears to be getting smaller, or at least dropping, as it moves to the rear of the car. This created illusion of depth can be used to depict that the car is moving up a very large hill, down a steep road, or simply driving down a long city street. This effect serves as eye candy to the viewer. It gives them a chance to see the cartoon not as a static image, but convinces us that the vehicle is actually moving.

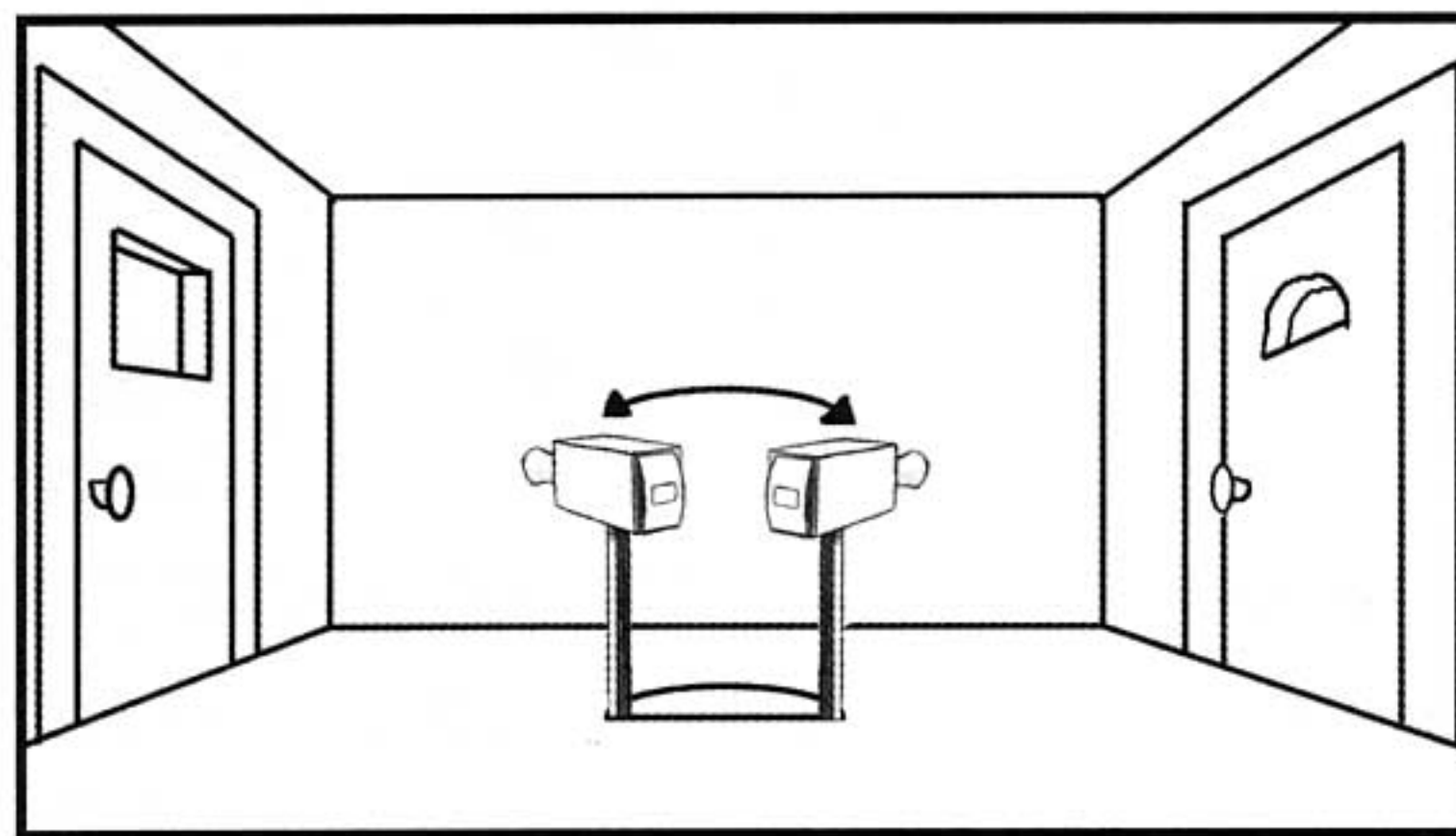
Vertical pans can be used for many scenarios including: airplane views, a close up of a character running, or a horse galloping across the prairies.

## PAN: WARP

Set up technically as a traditional horizontal pan, the name "warped" is derived from the perspective and characteristic fish eye appearance to the artwork. From experience, most students are very eager to create a warp pan drawing. Thinking back, I too wanted to dive right in and start drawing this bizarre background. What seems to scare some off is the amount of initial planning that is involved to create such a background. It is one thing to draw it and another to understand HOW it was created and WHY it works or does not. So let's start by showing you what it is.



A Warp pan is designed to allow the audience to see the entire acting stage, in the above case from POS A to POS E, while presenting the illusion that the camera has turned and filmed the environment.

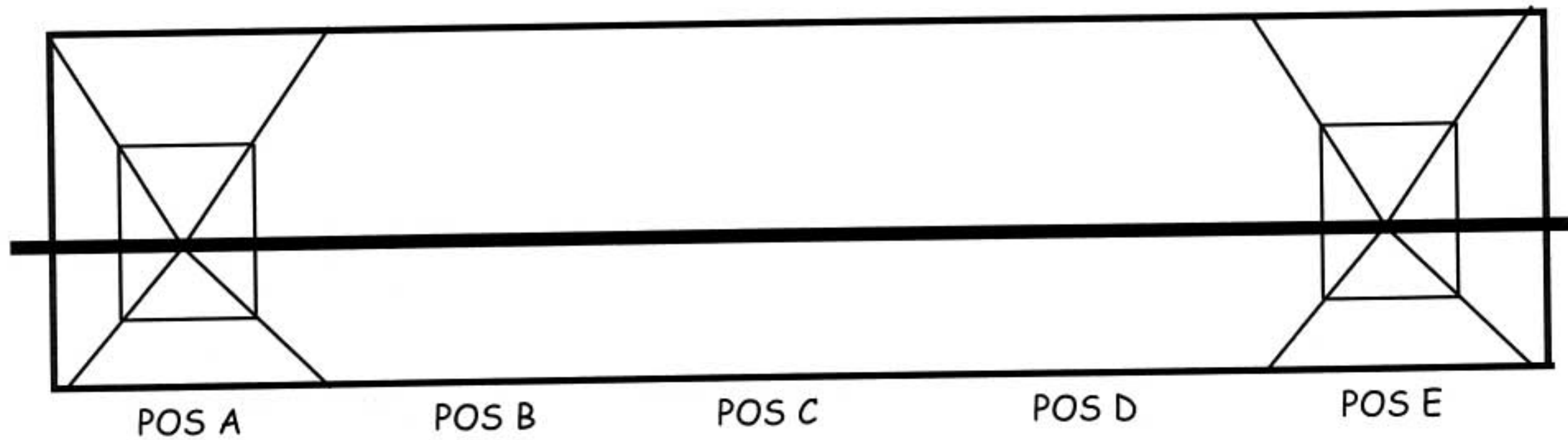


In reality we understand that a room is box shaped, (as seen above). To create the effect that the camera has turned from one side of the room to the other each end must be cheated.

**Cheated?**



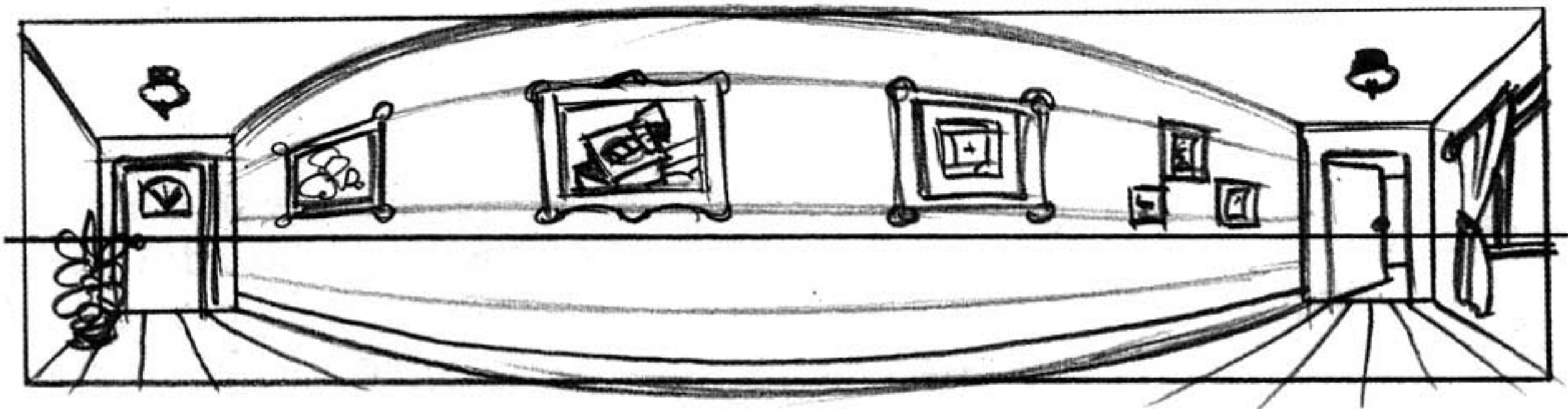
Yes, cheated. To start, we will simplify this example to a one-point perspective view at each end of our room. We shall place the horizon line at just below the halfway mark on the graticule.



As in the above diagram, each end has a door, two walls, a floor and a ceiling visible. Refer back to the previous page and the camera diagram to see that this is indeed where the cameras are pointed.

A warp pan can be any length, but to sell the believability, generally a position A to position D pan is used (as labelled above). If the distance is too short, then the arcs of the walls will become too obvious, thus changing the focus from the character to the background. Unless this was the original intention, keep the warp pan long.

This next step is NOT THE TECHNICAL way of creating a warp pan, but it works and it is an excellent starting point for the first time layout artist.



Bend the lines that are between the two doors so that a gentle arc is created. Any detail that is added to the middle must conform to the arc of the wall; note the picture frames. Try to ease out of one side and ease into the other side of the arc to create a fish-eyed view of the room: a warp pan.

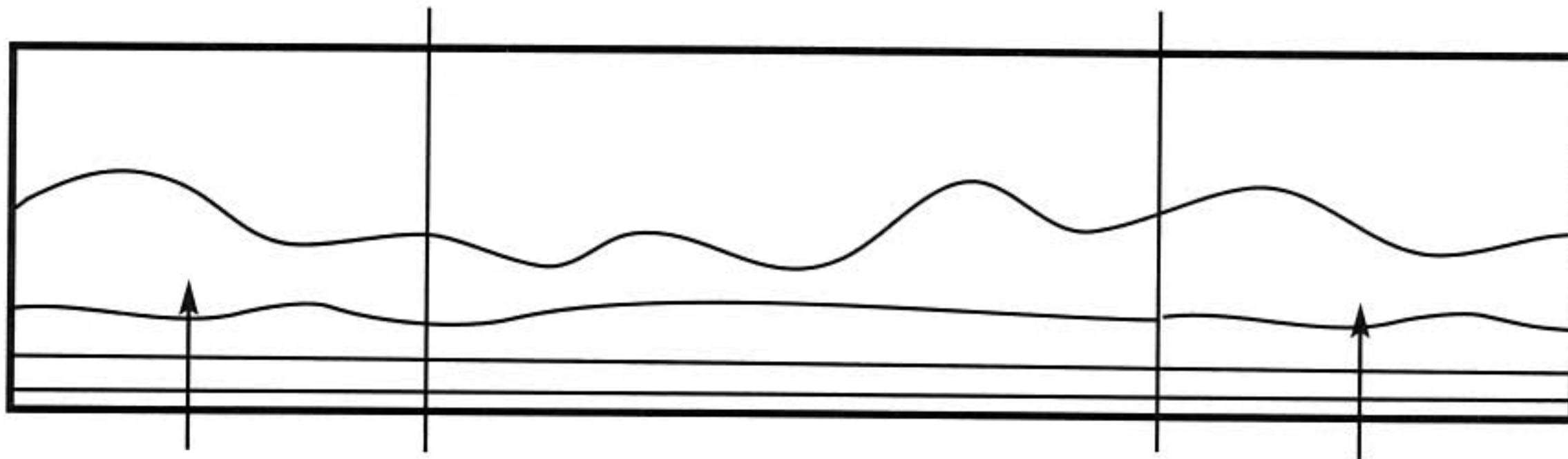
When the field guide and camera starts at one end then pans the paper to the other end, the artwork will give the illusion of turning the camera in the room.

## REPEAT PANS:

A repeat pan is a long piece of artwork that is designed to be seamlessly pieced together and cycled for as long as necessary. The last peg position and field is an exact copy of the first peg position and field.

### WHY?

This is done to ensure that the artwork hooks up smoothly and accurately when repeated.



Original fielding(square-round-square)

Exact COPY of original field

For examples of a repeat pan background, I suggest watching most animated television cartoons from the 1960's and 1970's, such as Hanna Barbara's The Flintstones, Yogi Bear and Scooby Doo. This was a money and time saver for these productions by repeating backgrounds whenever a character runs or walks for a long period of time.

### How is it created?

To create an example like this one shown above, start with thumbnail sketches to show how you want the pan to look. Most studios will provide location designs of what the area should look like, but it is up to your creativity to make this background look and be functional. No pre-planning equals no success in the final product.

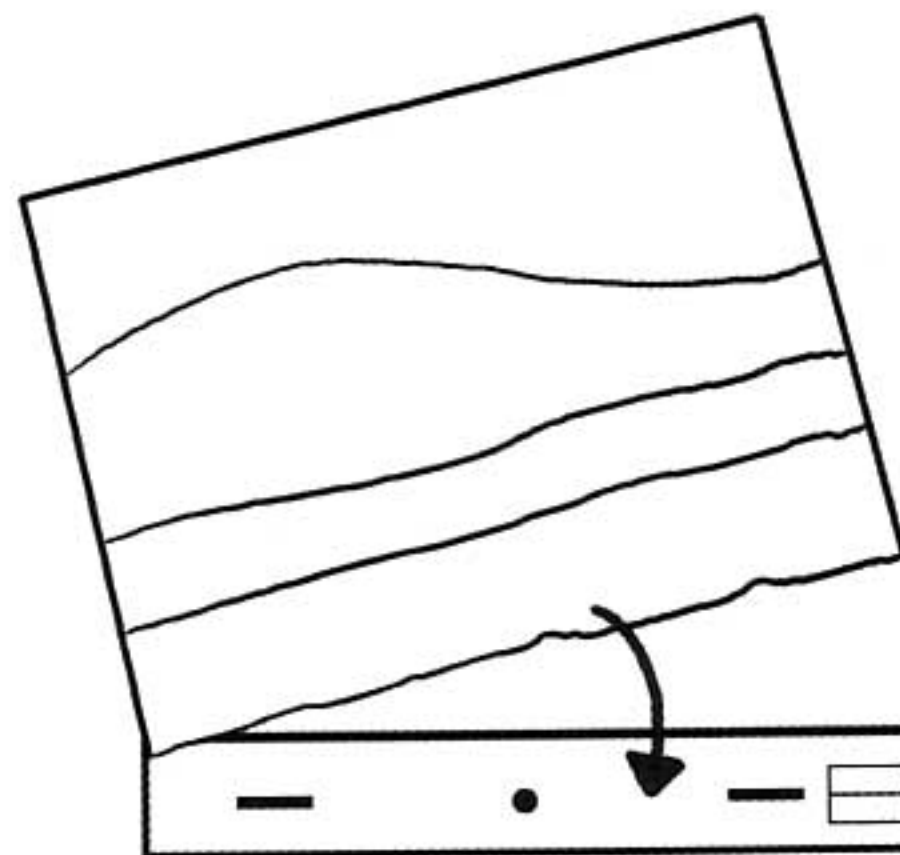
How do I get the last frame to be exactly the same as the first? How do I know it will line up in the middle?



First the duplication: After reading what is required from the storyboard for this scene and after experimenting with many thumbnail versions, create the first rough portion of the background that spans the full three pegs. I recommend photocopying this rough, line it up with the original and tape the drawing to the table using removable tape, and re-peg the artwork.

**Re-peg** means to cut off the existing peg holes and attach new, properly lined up peg holes to the page.

Carefully remove the re-pegged page then tape it to the end of the pan with the proper peg names labelled. Finish drawing by filling in the lines to the photocopied page. If you deigned your background well, vertical objects such as trees, fence posts and buildings become the junction areas of the drawing.



To clean up the repeat pan drawing, follow the same steps of copying and re-pegging the artwork. If the last position is not the same, even in the slightest, the artwork would "POP" when it was hooked up with the first frame, causing the focus to transfer from the animation to the background.

As with all PAN information, on the FG, indicate the direction the pan is to move **FROM** and **TO**. In the case of a repeat pan, the last instruction line states what to do when it gets to the last peg position. Here it is indicating that **POS E hooks up to POS A** (both of these positions are the same), then **REPEAT pan as necessary**, (until the director says the animation is complete).

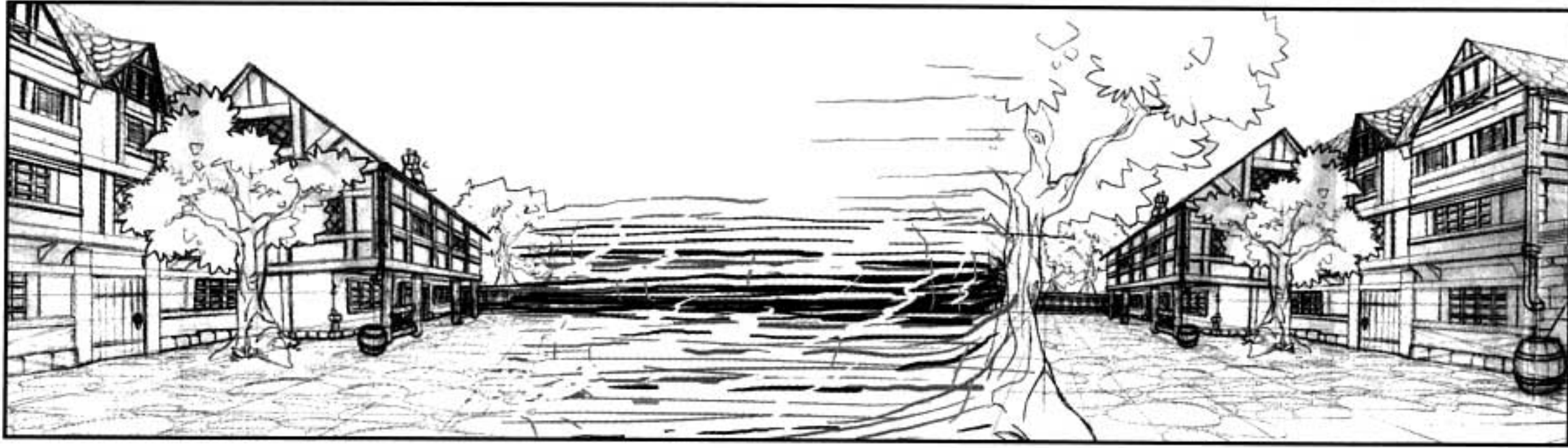
	PAN BG LT FROM POS A ¢
	TO POS E ¢
	POS E HOOKS UP TO POS A
	REPEAT PAN AS NECESSARY

Ensure that for everything you print on the field guide or any piece of artwork, that you always use **CAPITAL LETTERS** for clarity and ease of reading.



## SWISH or ZIP PAN

The SWISH or ZIP PAN is the layout equivalent of a breath of fresh air. This type of pan is used for fast camera moves, action and scene transitions. From experience, when the storyboard artist called for a swish pan, eyes would light up in the studio as we fought to do the scene. In the following example you will see why.



Traditional SWISH / Zip Pan with starting detail and ending detail.

Technically treated like a horizontal pan, the STOP and START points are labelled along with the peg positions. Swish pans are not limited to horizontal movement. They can be vertical or diagonal pans as well. The format remains the same; starting detail with centre blur to ending detail or just a blur effect.



A SWISH / Zip Pan with only blur lines.

Being very abstract and usually without any form other than lines, the layout artist can not suggest colour in most studios, so different thickness in line weight guide the background painter through the drawing.

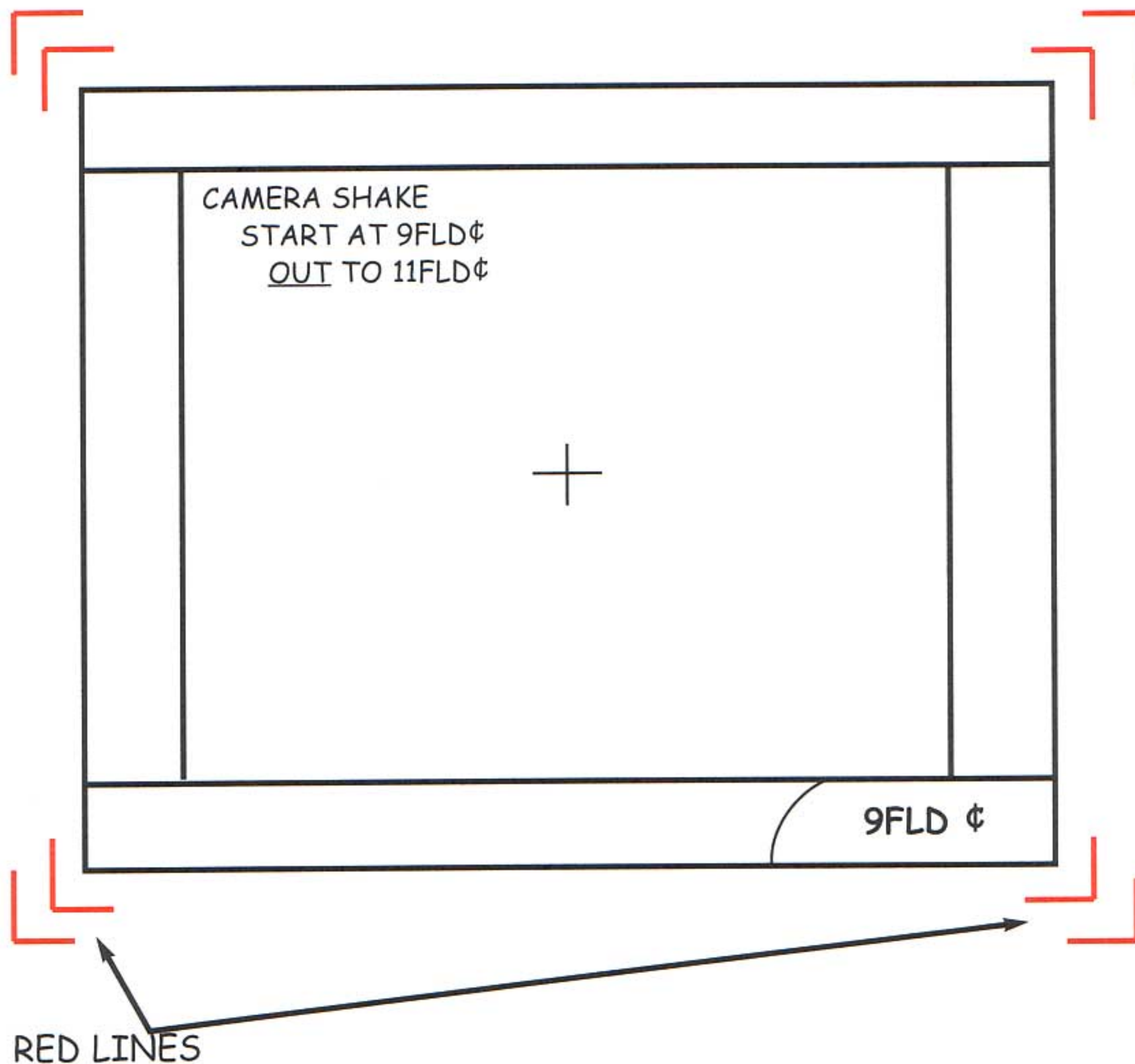
**Why are swish pans like a breath of fresh air?** It is because they push creative thinking and design composition one step above a normal pan. Granted, a blur only pan with just lines does very little for creative thinking. Try creating one or two swish / zip pans based on the above examples.



## CAMERA SHAKE

The CAMERA SHAKE is used to define an explosion, a large weight being dropped, or any sort of strong impact. Special attention must be placed on the initial field size to ensure the move is possible.

For example: A **9FLD¢ FG** has a camera shake starting two fields greater (11FLD) to two fields smaller (7FLD). Both extreme fields are shown only by RED exterior corner marks. Layout can suggest timing, but for the most part, the animator or compositor will follow the exposure sheet for the camera shake.



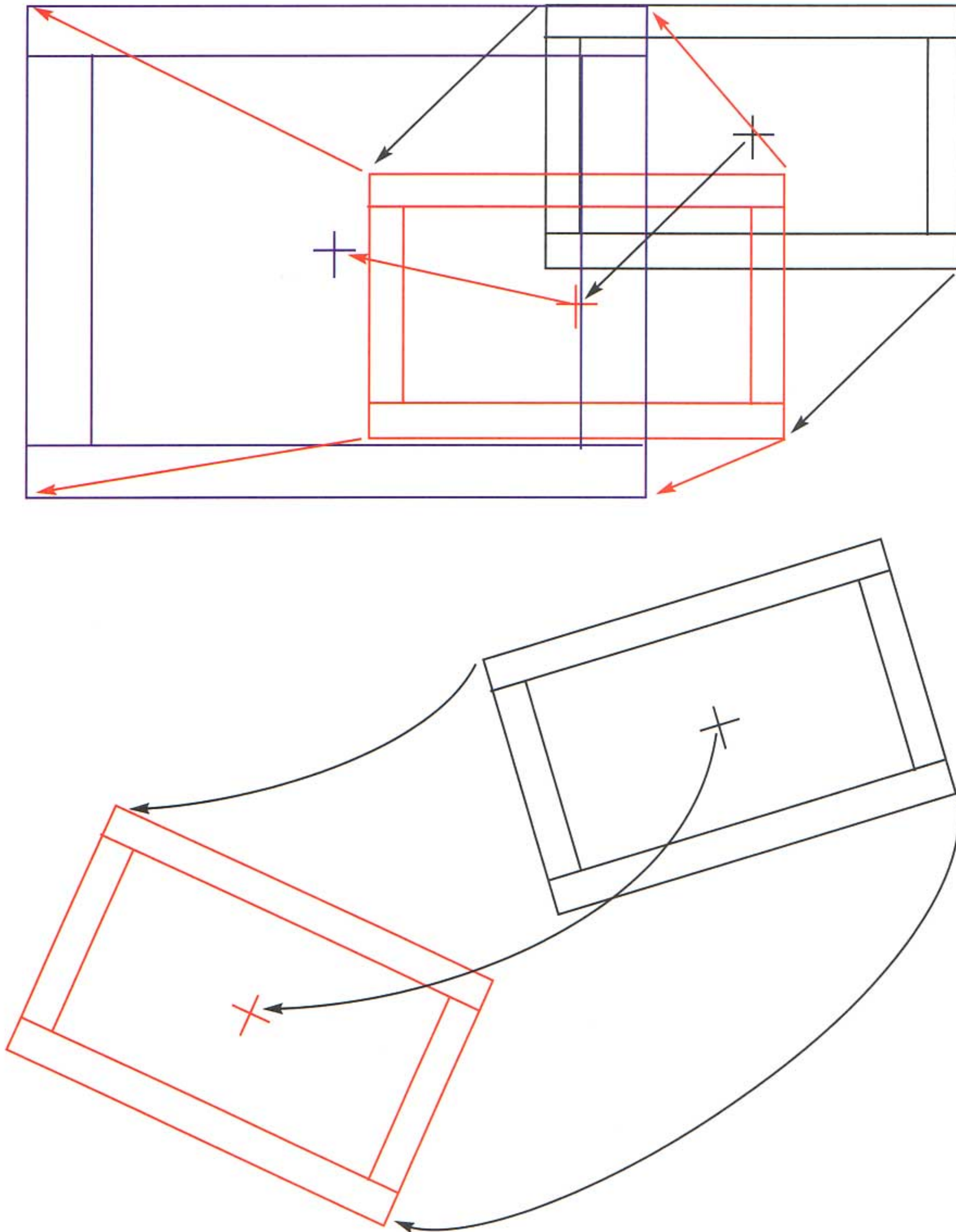
The above example illustrates a camera shake that starts at a **9FLD ¢** field guide and expands out to an **11FLD ¢**. The labelling on the field guide indicates that it is a camera shake and what the parameters will be.



## COMBINATIONS OF CAMERA MOVES

There are many different combinations, variations, and versions of camera moves that it is not possible to show examples of them all.

I present a collection of interesting camera moves of the simplistic to the very complex field guide. All of which I have drawn and used in the industry.





## **EXERCISES:** CHAPTER 9 Camera Moves

For most of the remaining exercises in this book, an animation disk or a floating peg bar set-up is required. If you do not have these tools, the projects can be completed, but they will be lacking in accuracy and required professional quality. A floating peg bar, which is a small strip of plastic that has a square, round square peg set up similar to an animation disk, (only without the measured ruler), can be purchased for around \$15 US.

Try these exercises that focus on creating various camera moves based on the information given in this and previous chapters.

Use several standard sheets of animation paper for these exercises.

Below are two assignments to design:

1. Start with a 12FLD guide that has the proper corner labels for a two-box system showing: PROJ-11 and FG-1 (1 is for the scene number)

Next draw a 7FLD 2N 3E field guide in the appropriate colour. Complete the labels and direction arrows of this truck in.

2. Design a vertical pan that starts at position A and goes to position C. At POS A the camera STOPS at 7FLD centre. At POS B the field guide is at a 9FLD while at POS C the pan starts with a 6FLD. Include all pan direction labels and a two layer scene information box in the bottom right corner. The show is called PROJ-1 and the scene number is 2.

3. Create a repeat pan WITH artwork. The pan will span from POS A to POS D, whereas POS D is an exact duplicate of POS A.

The field guide remains the same, at an 11FLD, so only one piece of paper is required. On the field guide be sure to place all the necessary camera direction information inside the top left corner.

The theme of your A to D artwork is of a northern pine forest where the trees are tall and grass and stones can be seen on the ground.

Label the START and STOP positions of the repeat pan, as well as the pegs, and bottom right hand scene information box.



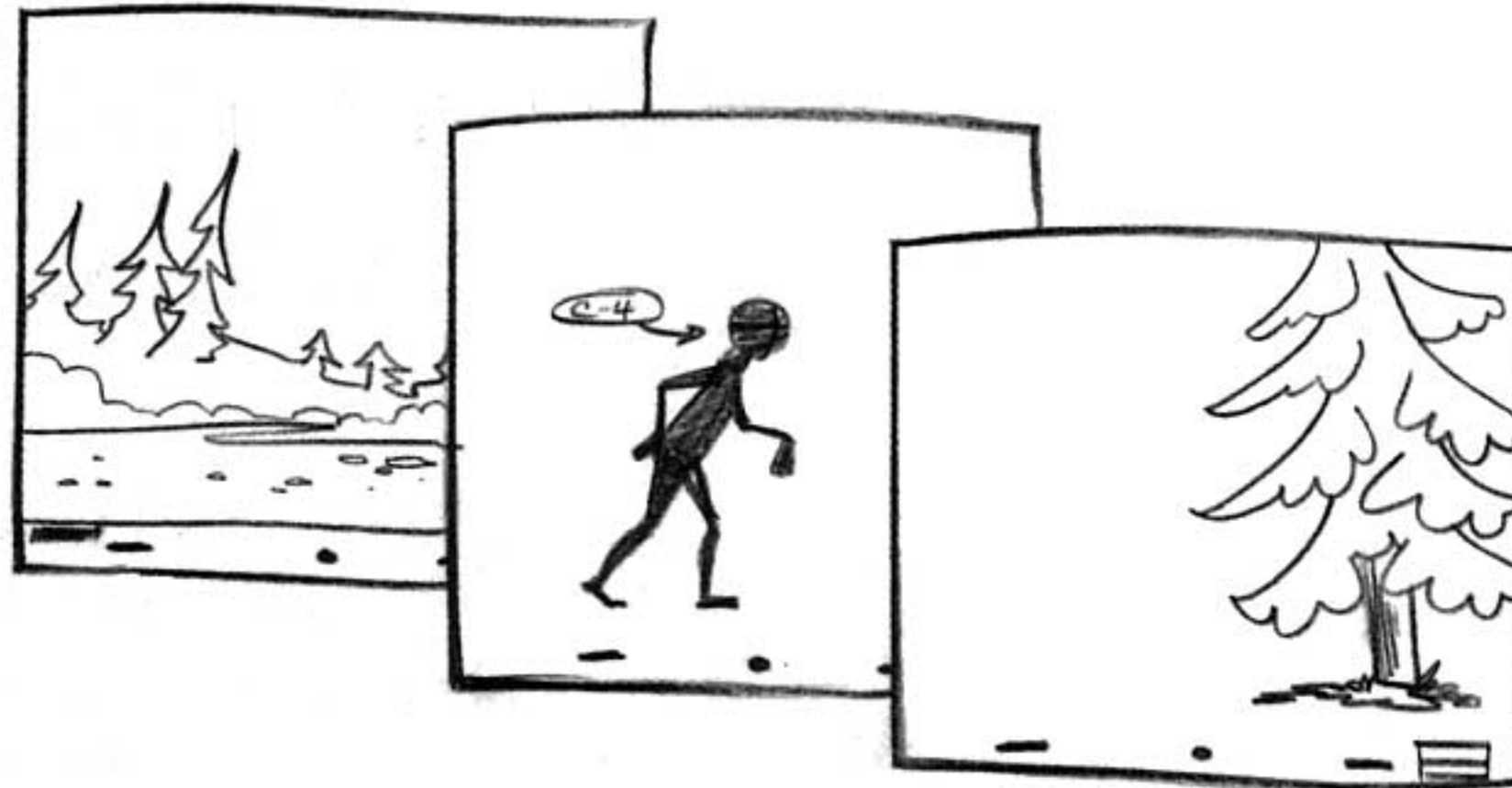


## BACKGROUND LAYOUT ELEMENTS

Overlay, Overlay/Underlay  
Held Cels  
Background  
Match Lines verses Level Separation  
Special Effects Animation  
Character Placement and Poses  
Artwork Clean-Up

## OVERLAY (OL) and OVERLAY / UNDERLAY (OL/UL):

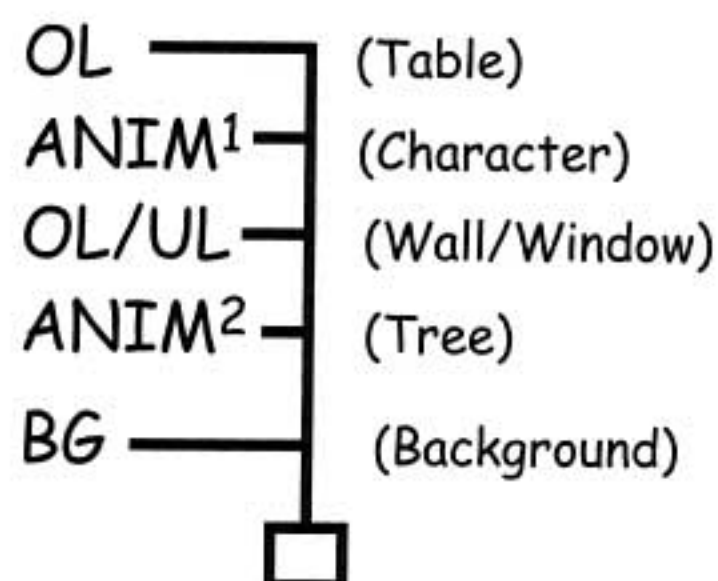
A layout **OVERLAY** is the **TOP** level of non-animated artwork, designed to create depth. Specifically, an overlay is the element that must be separated from the background and placed at the very top of the artwork pile, to allow a character to move freely on stage. The diagram below illustrates a background level, animated character level, and the overlay of a tree.



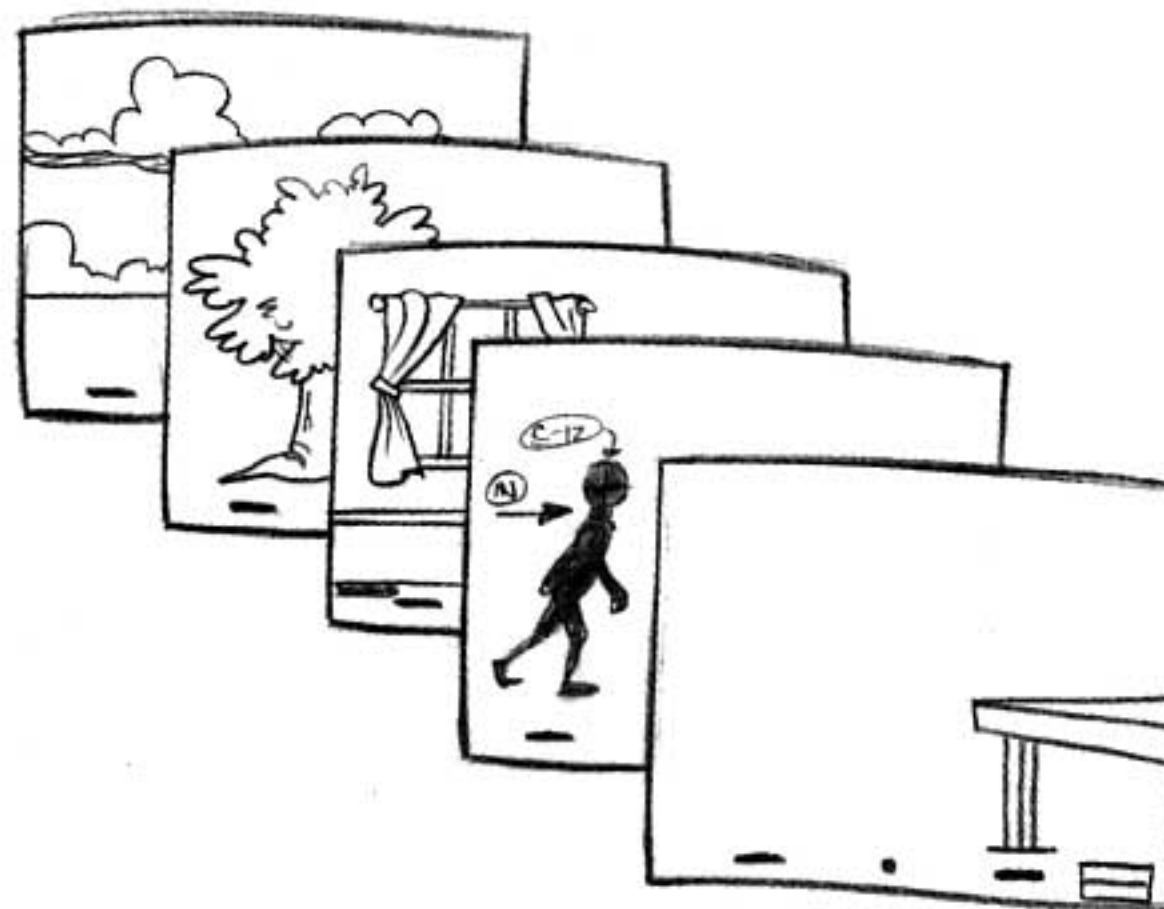
An **OVERLAY / UNDERLAY** is a level of non-animated artwork, designed to assist in creating depth. An overlay / underlay is planned separation of more elements from the background, as required by the animation in the scene, than an overlay.

Some studios describe an **UL** as any layout artwork **UNDER** the animation, and **OL** as the layout art **ON TOP** of the animation.

Think of an interior living room, a table, and a window showing a moving tree outside. The storyboard calls for a character to walk through the room, between the table and the living room wall. The tree outside and the character are animation levels, as they are moving. The table will not move at any point. Below is the level sketch, as it appears on this field guide, and the drawings in order.



Field Guide Level  
Sketch



Layout Level Separation: BG, ANIM<sup>1</sup>, OL/UL,  
ANIM<sup>2</sup> and OL.

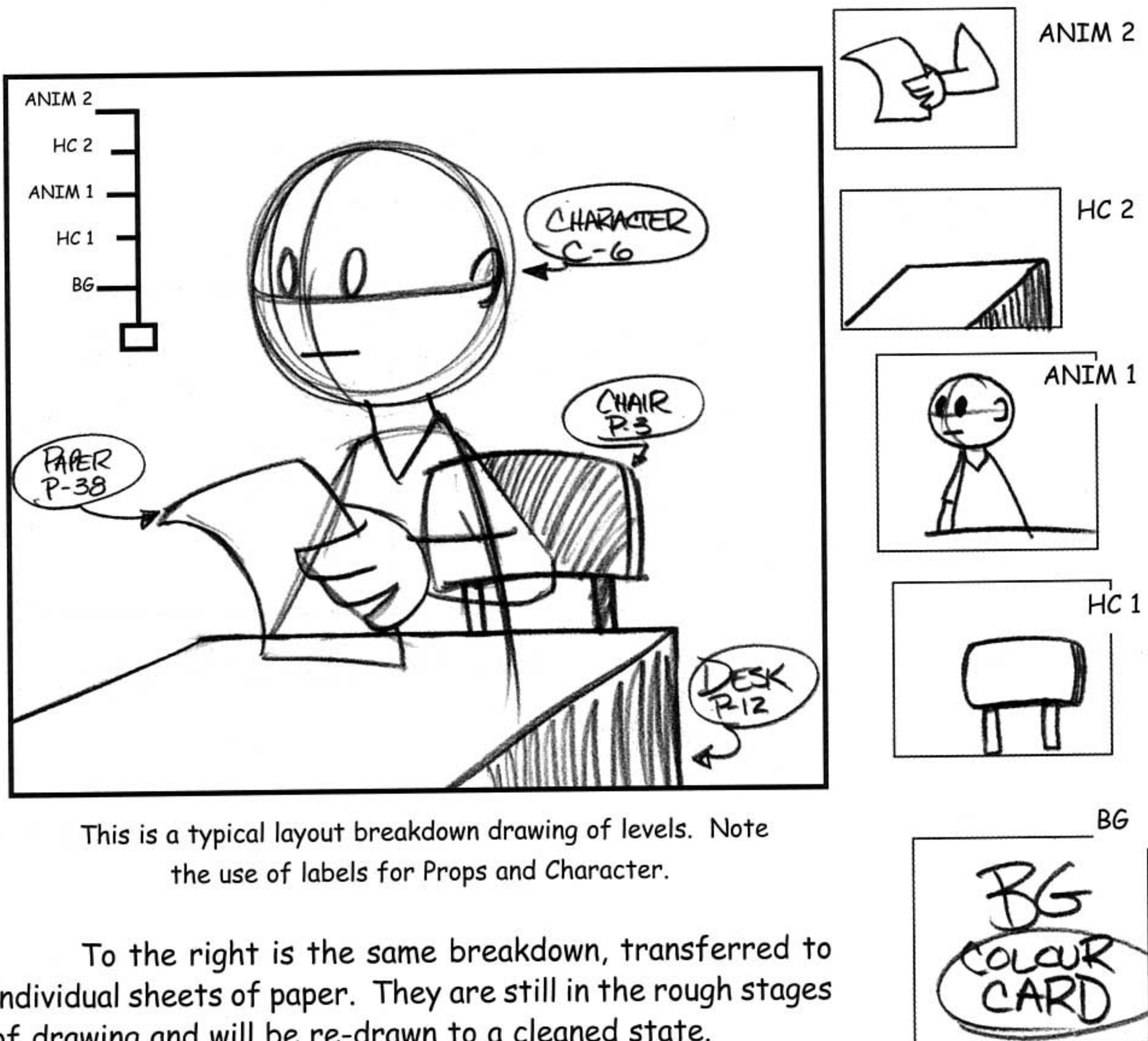


## HELD CELS (HC):

HELD CELS are separate elements, which at some point in time, will be animated. Objects and characters that are required to remain stationary for a period of time before moving, during a scene or sequence of scenes, are labelled as a Held Cel. Props such as a chair, a door, a car, a glass and a cookie often move.

Unlike an overlay or overlay/underlay, a held cel is ordinarily not part of the background location design. It may be drawn on to a location design for reference and size relationship, but will always be depicted on a Prop Sheet.

The example below is one storyboard panel of a character sitting at a desk with objects on the table. Although I have not shown the next storyboard scene, the objects on the desk will move.



This is a typical layout breakdown drawing of levels. Note the use of labels for Props and Character.

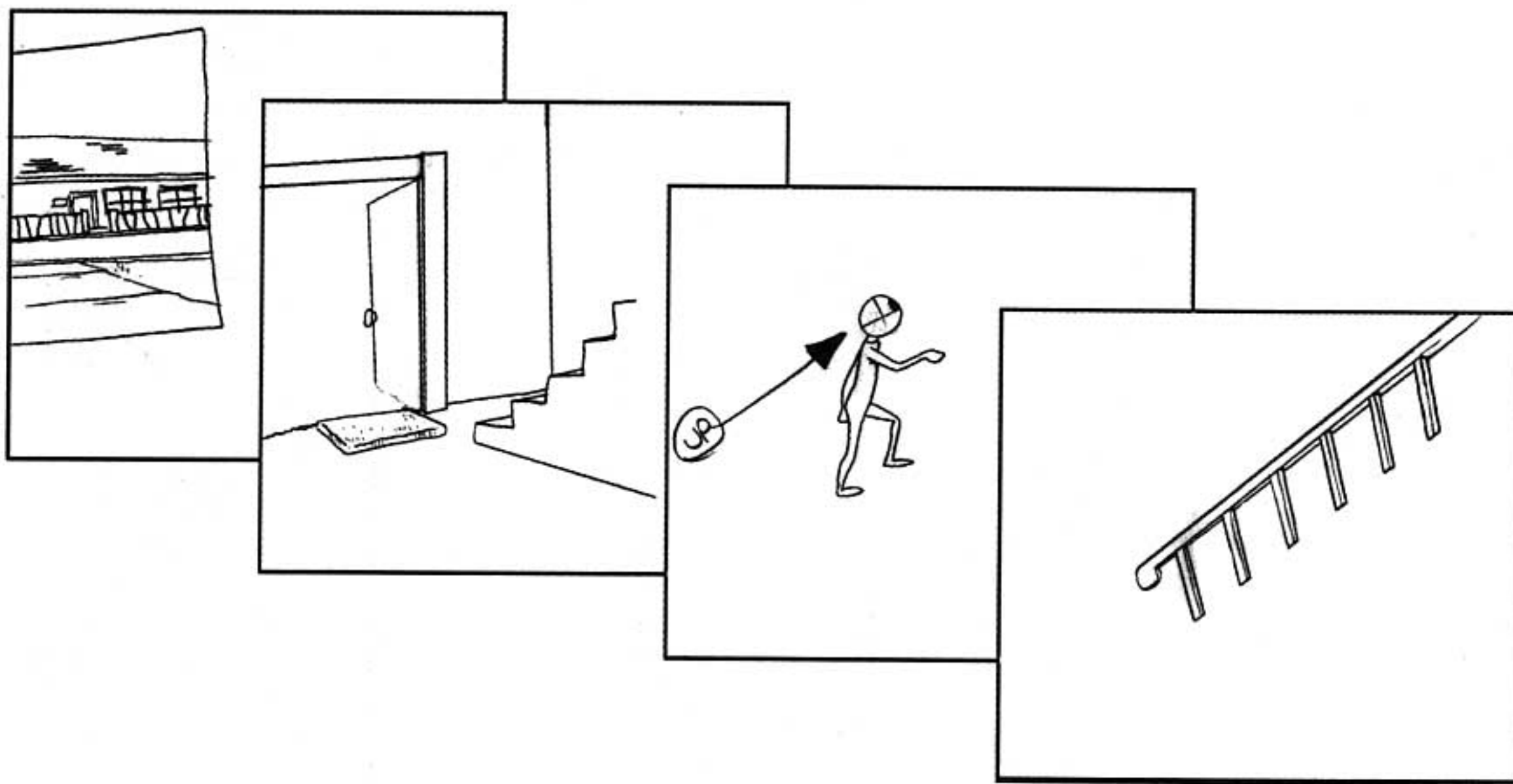
To the right is the same breakdown, transferred to individual sheets of paper. They are still in the rough stages of drawing and will be re-drawn to a cleaned state.

## BACKGROUND (BG):

The animation layout background is the environment for which a character will live, act, and interact with other elements. It is always the bottom layer of the artwork when used; some scenes do not require a BG if utilizing a bottom layer of animation. The complexity of the BG drawing can range from a highly rendered, realistic city street to a simple colour card. A colour card is background of a single or a blend of colours, with no definite form.

To create a layout background, all of the information previously presented on composition, fielding, character placement, staging, perspective, perspective grids, field guides, television cut off, and for some studios, tonal values, are required.

In place of showing a completed background, the example below represents a level separation of a background, an overlay, an overlay/underlay, and an animation drawing.



**NOTE:** Here is a planning list to consider when creating a layout background.

Do the elements create a focal point?

Will the background overpower the characters or will it be harmonious with the characters?

Do the elements of the background flow off the page or create visual patterns?

Is there a strong foreground, mid-ground and distant elements that blends well together?



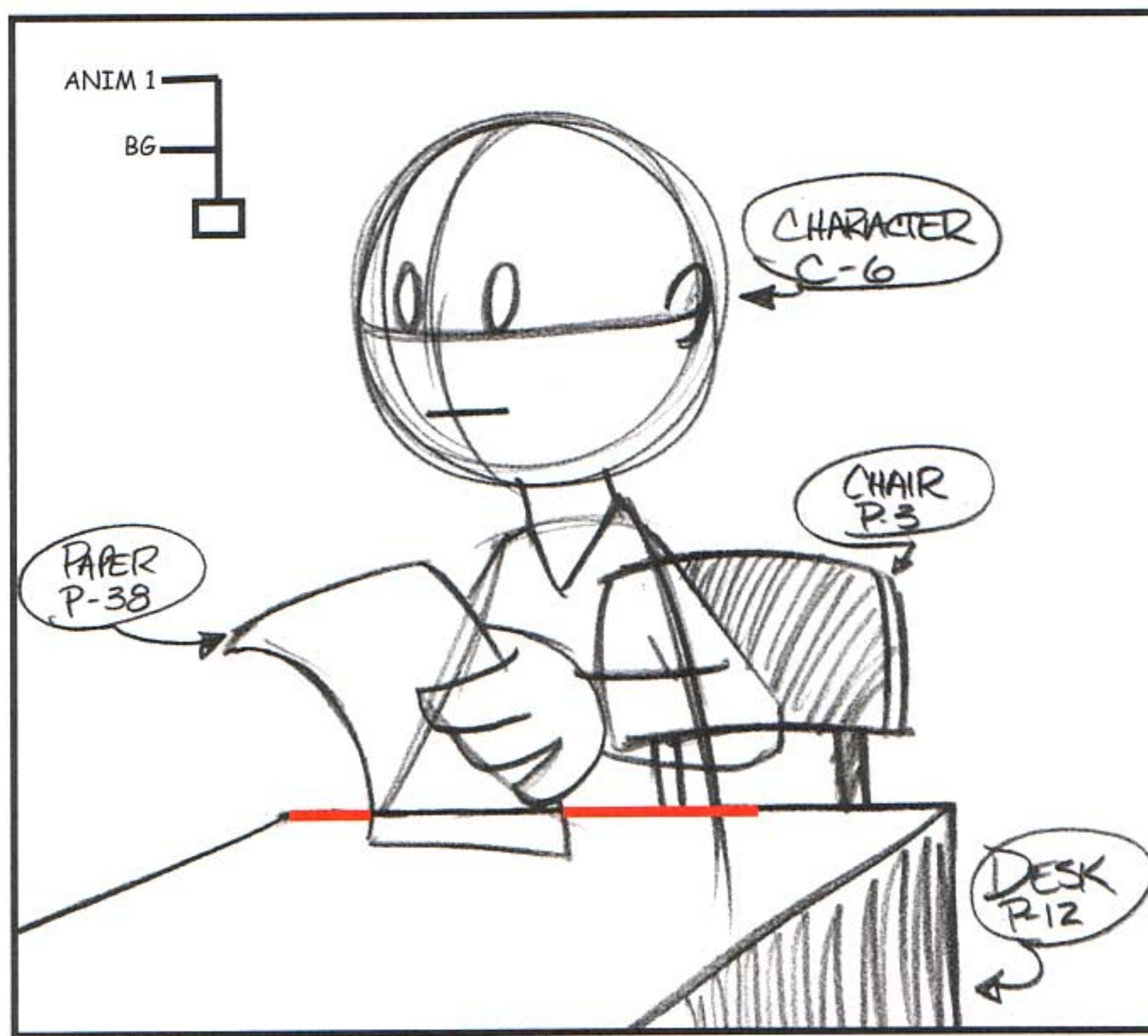
## MATCH LINES (ML) VERSES LEVEL SEPARATION:

Before the arguments are placed forward on match lines verses level separation, the question, "What is a match line?" must be answered.

Match lines are two identically placed lines, one on the background element and one at the exact spot on the animation. The purpose was to allow an animated character or object move behind a background element, without the animation interfering with that element.

Not so long ago, when all animation was shot on animation cels, there was a physical limit as to how many could be stacked on to one another. The more levels there were, the darker the animation became. To solve this problem, a **red match line** was used as a stopping point for the animation, such as the example of the person behind a desk, while keeping the desk on the background level. The more complex the shape and match line was, the more difficult it was to animate to that line.

Below is the same desk from the HELD CEL page. Compare the differences and similarities of each method.



Match Lines are drawn in RED on both the background element and on the animation pose.

At the end of the match line a **ML** was labelled for clarity, but it is rarely used today.



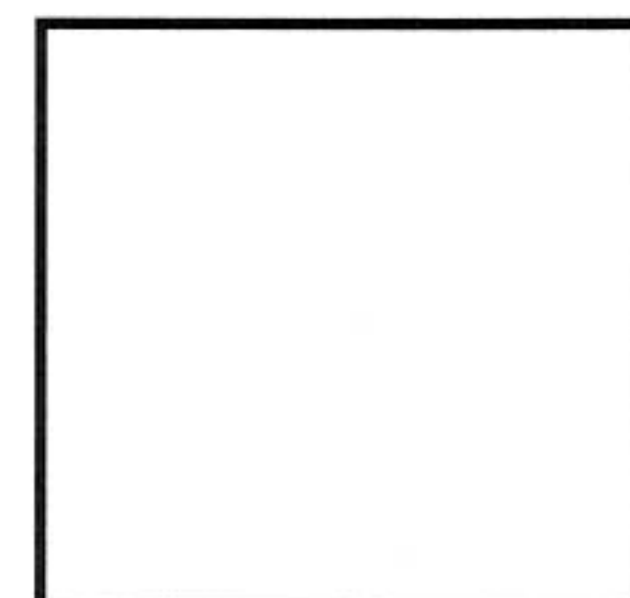
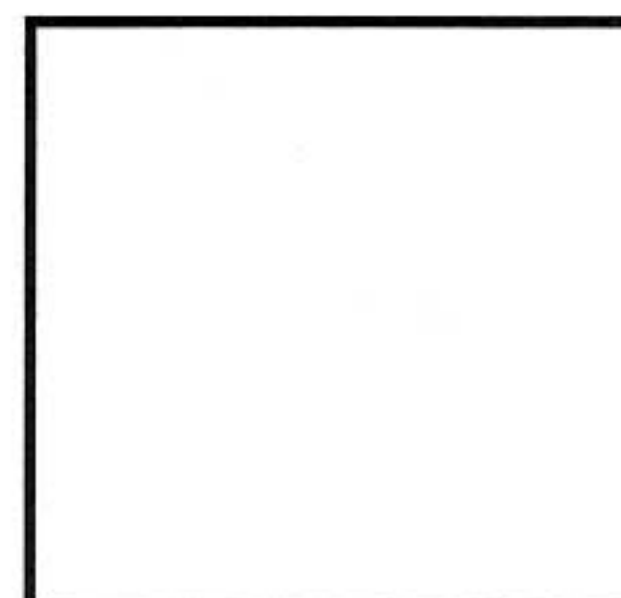
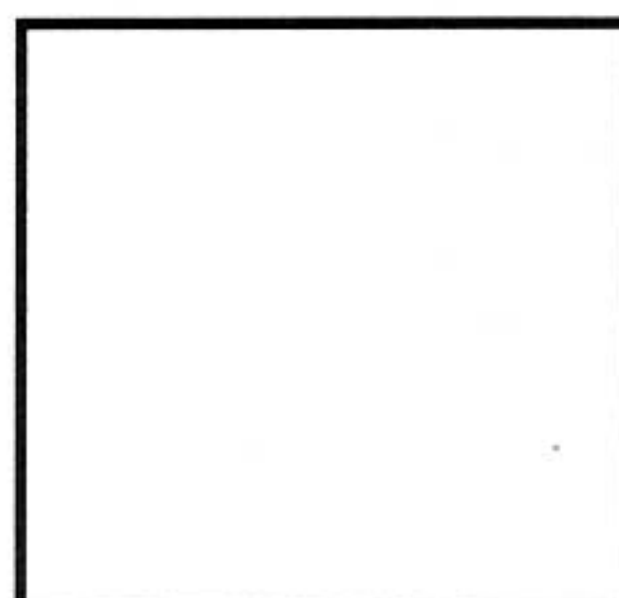
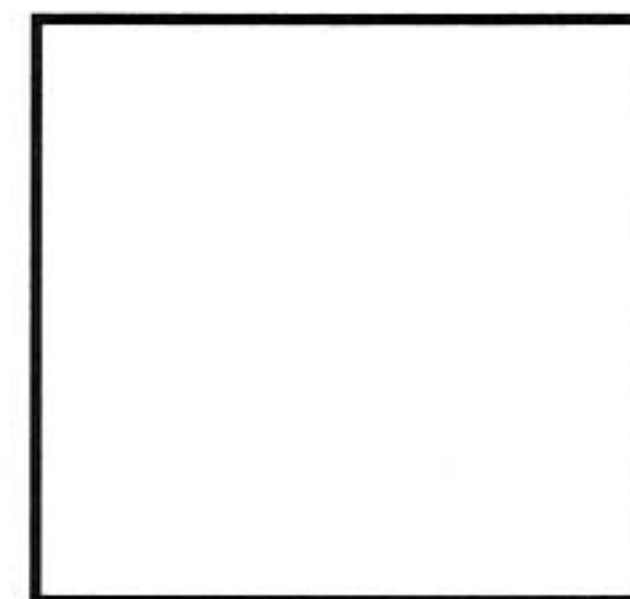
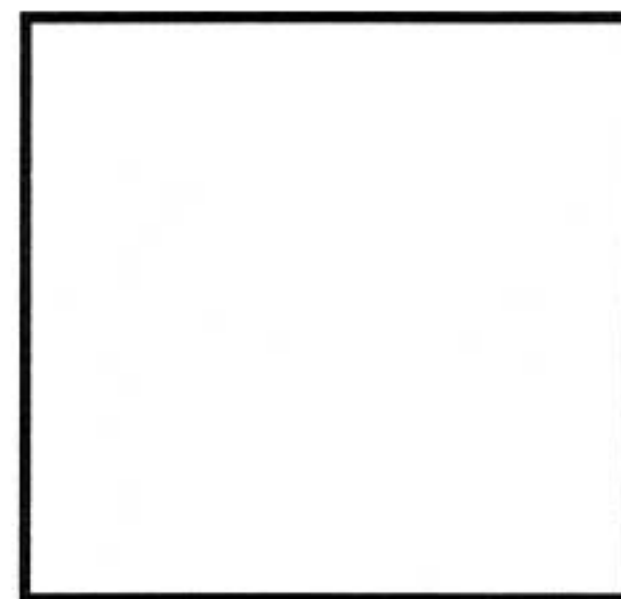
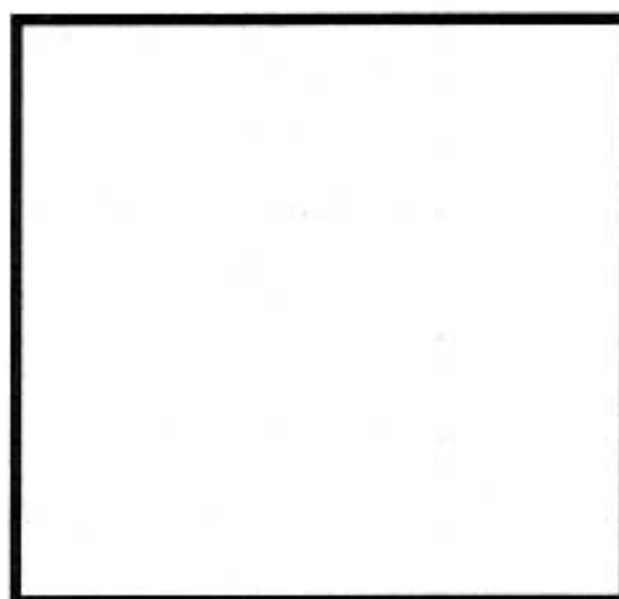
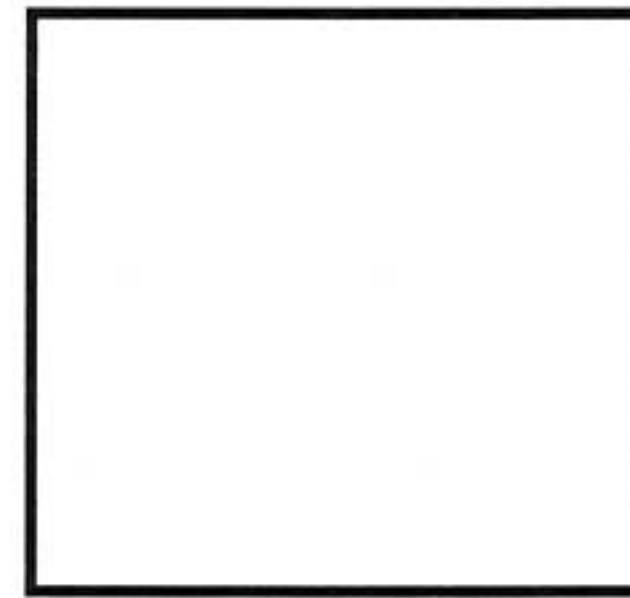
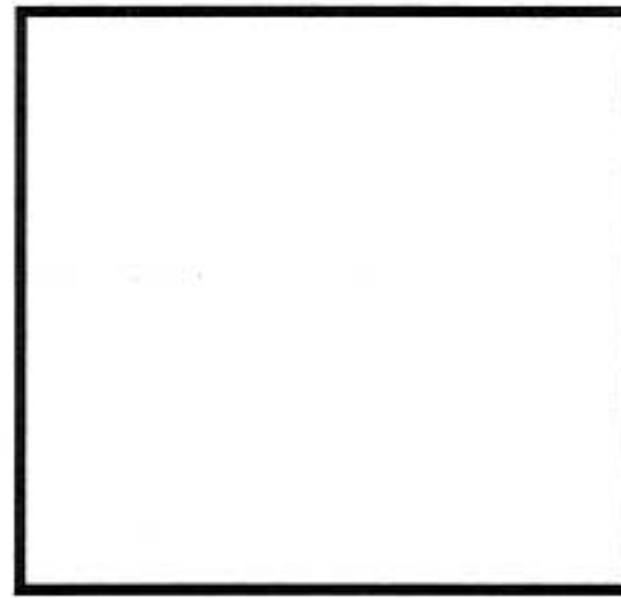
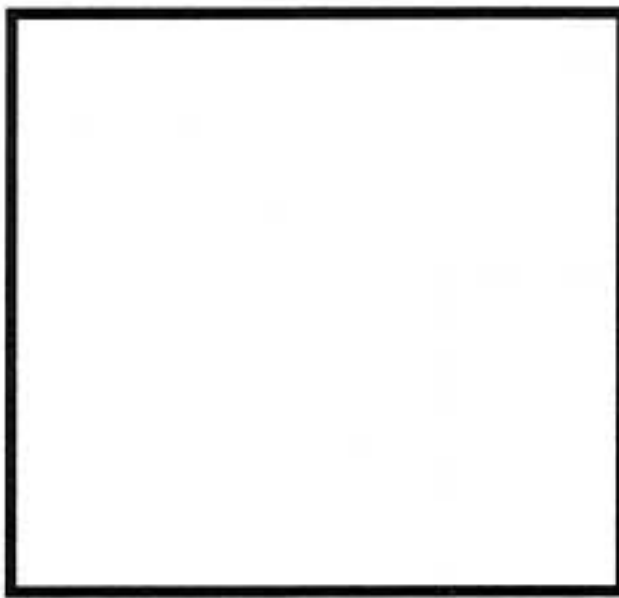
## SPECIAL EFFECTS ANIMATION:(SFX)

For most people, special effects animation or SFX is just the fire, the blast, or the splash of water under a character's foot. Actually the special effect animation also covers rivers, snow, a branch breaking off a tree, and eve a bus driving down a street.

Most studios consider SFX animation as any object that is not a character. Other studios SFX animation is only the fire, the rain, or a dust cloud.

I originally had many examples of SFX for this section, but I found, even while teaching, that giving a sample does not always mean they it was looked at. Below are the same examples I gave my animation students and the requirements of the exercise.

In these boxes below, create and draw as many examples of special effects animation from watching: 1. Television cartoon. 2. Classically Animated feature film. 3. Computer animated feature film. 4. Any other special effect that you would like to animate. Label each example.



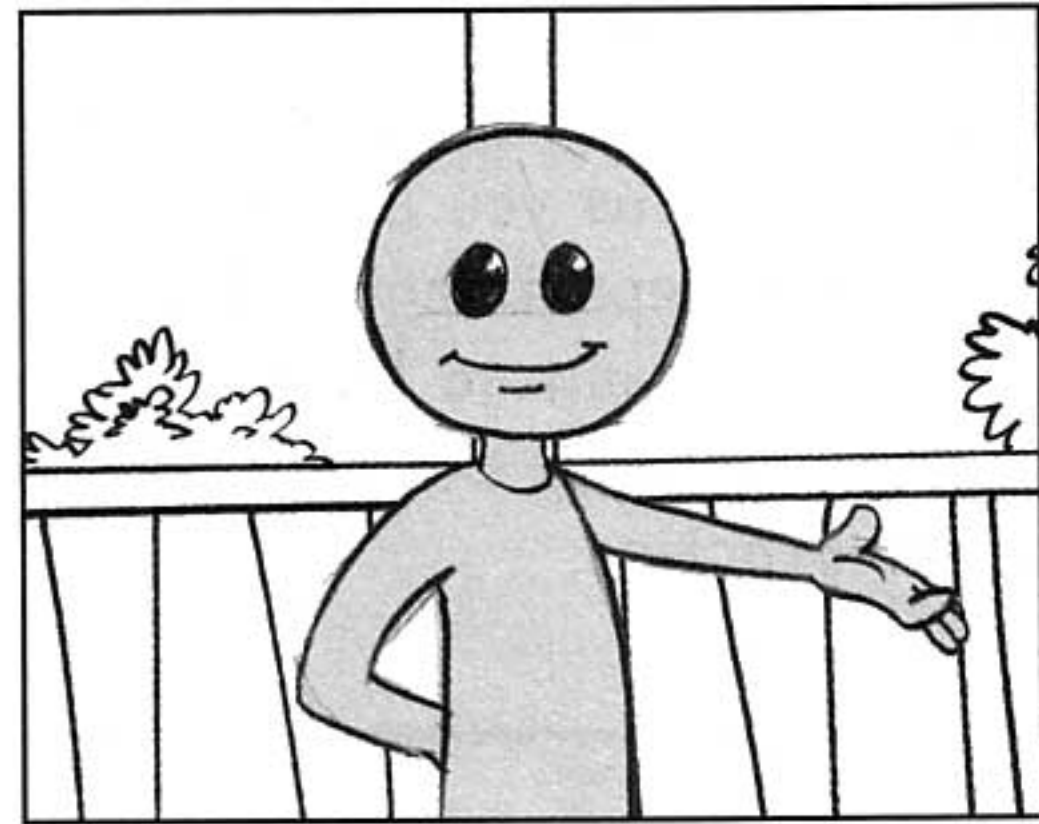


## CHARACTER PLACEMENT AND POSES:

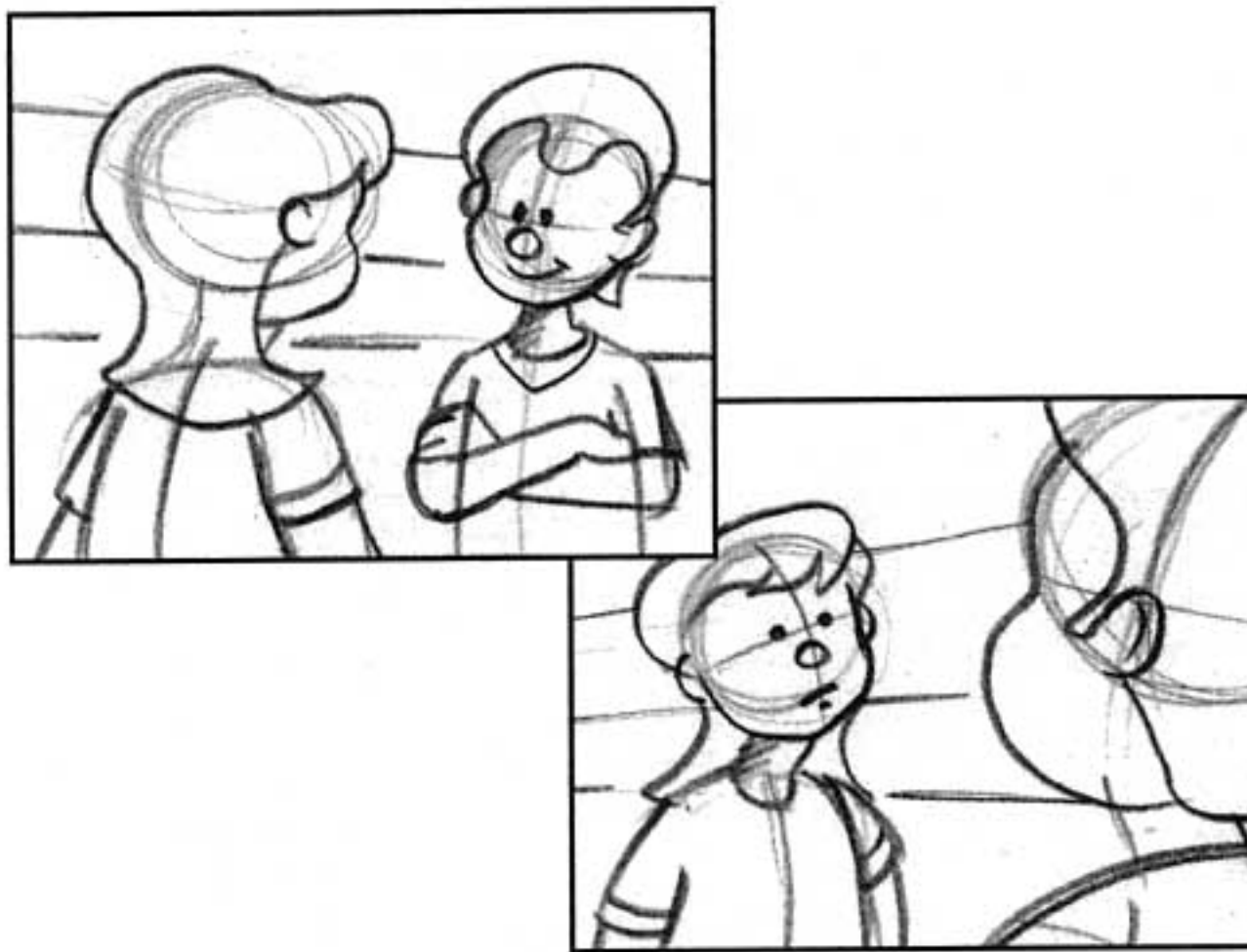
Everything that you have read about staging, fielding, horizon lines, patterns and more, is what layout character placement and poses is about.



**Composition:** Ensure that the character has leading space and room to act by placing the character to one side of the field, usually their back. Also, consider the eye direction that the character is looking.



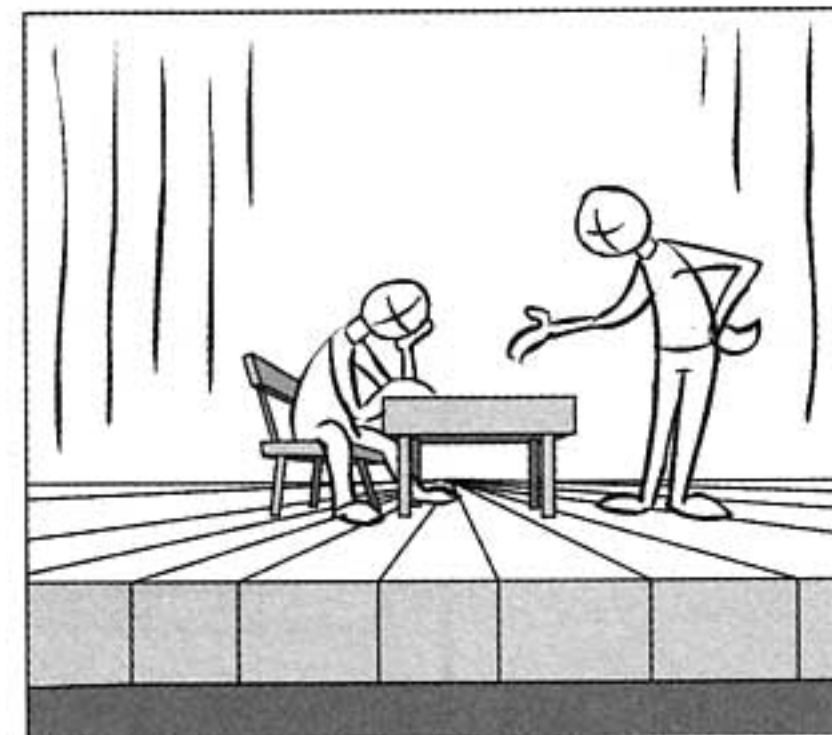
**Tangential Growth:** Objects behind or in front of a character appear to grow out of the character. Lines of two objects converge to become one line.



**Hook-ups and Match Cuts:** Make sure that the characters placed in one scene match the placement when cutting to a new angle of the next scene. There are various definitions for each of these terms.

A **Match Cut** is cutting to a character in the exact same pose only different angle.

A **Hook-Up** is cutting from one scene to the next with a character in motion.



**Perspective Grids:** Ensure that all characters are securely drawn on a perspective grid. The layout poses are guides, and even the final animation key drawings. If the characters appear to float in the air, the solution is to draw a light perspective grid on the layout pose sheet and then draw the characters feet on the grid.



## ARTWORK CLEAN UP:

Cleaning up your rough blue layout drawing to a crisp black pencil line is not as difficult as people think. Commonly I hear from students, "I can't draw because my hand is sore." "The line is too shaky." and "The lines are smudged and I don't know why."

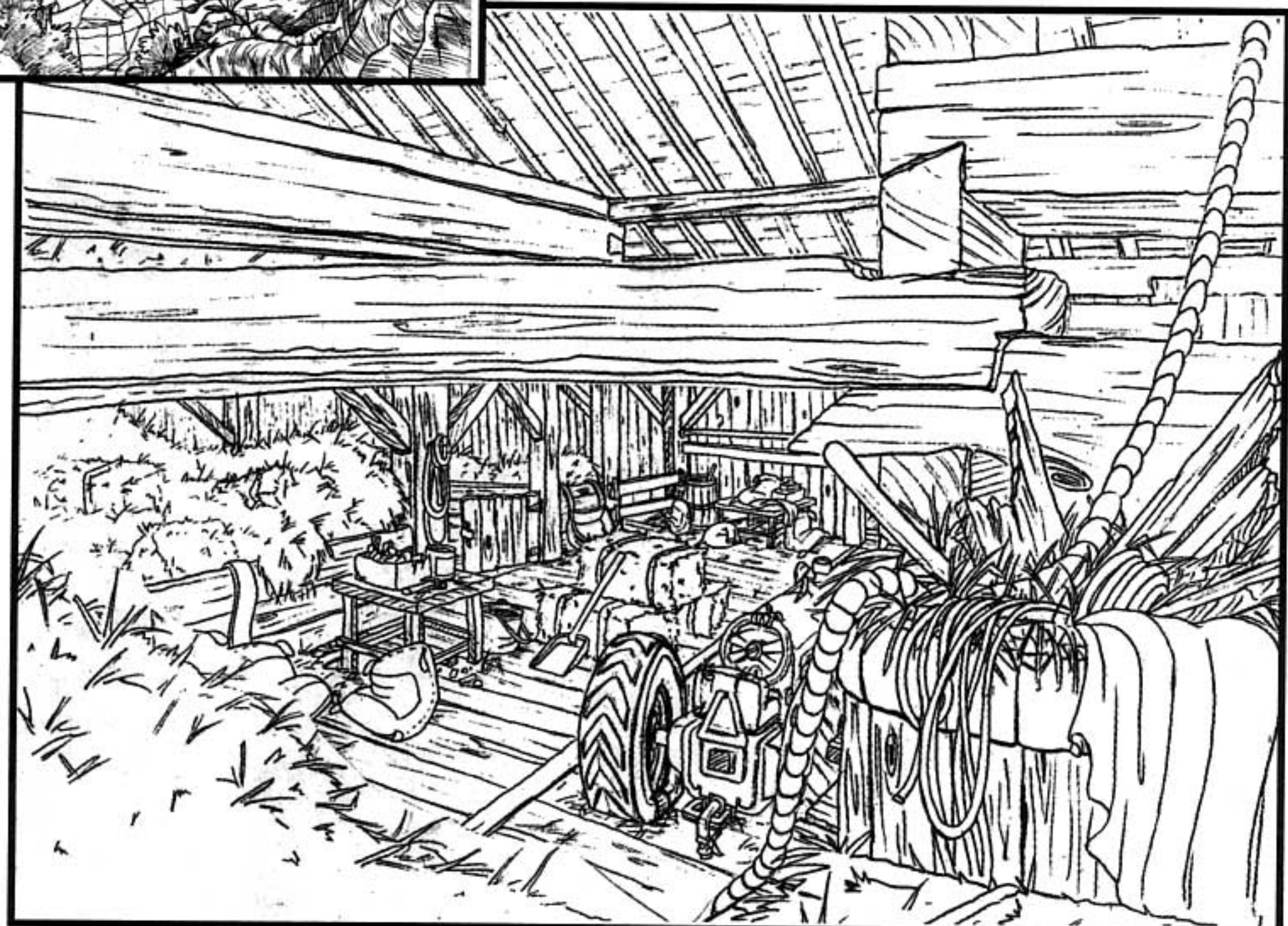
Relax. Do a series of warm-up drawings of circles and lines, (all the same size and various sizes), to get your arm and hand ready to draw. When you do start to clean up the layout, draw by using your whole arm, not just from the wrist. Sharpen your pencil often. Think before, during and after you have drawn a line; if you make a mistake, stop, and restart the line. With your thumb and finger, rotate the pencil as you draw. If the show requires a tapered or thick'n'thin line, lift your pencil as you complete the line. **CONNECT** and **CLOSE** all lines for the digital paint department. This stops the paint filling the wrong areas.

If you want to know how to clean up properly, my advice to anyone is to practice. Clean up sketches, doodles, props, locations; small and large, as long as you just practice.



Here are two examples of a stylized realistic environment.

Each layout was originally designed for a multiplane setting; having more than one level within the drawing. They are combined for ease of readability.





## HOW TO COMPILE THE DRAWINGS

Storyboard to Background Layout  
The Folder  
The Content Information

## STORYBOARD TO BACKGROUND LAYOUT:

From start to finish, here is the entire layout process as used in traditional animation. As stated earlier, each studio has various methods of completing the layout package. This is a general version.

**Start** by reading the storyboard. Your scenes will be assigned to you by a layout supervisor or director. Re-read your section so it is understood.

**Attain** all the necessary character model sheets, location designs, prop designs and special effect designs for your sequence of scenes.

**Re-read** your storyboard sequence to find any continuity problems and unclear visuals that may need revising by the supervisor or director.

**Complete** the establishing shots and the more complex scenes first. Why? By creating these layouts first, an environment and staging floor plan will be created for further continuity in your other scenes. Block in where the characters are to perform and then create the background elements around them.

**A good layout looks as though it is missing one key piece to the picture, the character, to complete it.**

**Create** the medium to difficult scenes such as 11FLD, truck and track camera moves and small pans.

**Finish** the easy scenes last. This includes ZIP or SWISH pans, close-up shots and colour cards. With the more difficult scenes completed, treat the easy scenes as a reward for work well done!

**Submit** your rough work to your supervisor for checking. If corrections need to be made, do so as soon as possible, before cleaning up the drawings.

**Clean up** all your layout scenes. If required, clean up your layout poses for use as overseas key animation poses (smaller studios use this practice).

**Compile** each scene inside its own folder and ALWAYS ensure your name is clearly labeled in the folder required elements box. WHY? This is how you get paid in many studios! Hand in the folders to your supervisor.



## COMPILATION OF WORK:

A generic version of the layout folder is illustrated below. Although, visually the animation layout folder varies at each animation studio, it communicates crucial information about each scene. With that said, let us look at a generic layout folder.

The outside of the folder is similar to the ingredients label on the outside of a food can. When the folder is opened, all of the ingredients listed on the outside must be contained within it, no exceptions.

To assist in understanding what is inside the folder, reduced storyboard panel(s) of one scene, is pasted to the folder. This visual check initially assists the layout artist and layout supervisor, but later the animator, special effects animator, clean-up artist, colour department, and compositor understand what is inside this folder. Where the storyboard panel is placed, is up to each animation studio. I shall place it on the left side for clarity.

SHOW	SEQUENCE	SCENE

DATE	FULL NAME

FIELD GUIDE	
LAYOUT	
KEYS	
INBETWEENS	
DOPE SHEETS	
ANIMATION	
SFX ANIM.	
PAINTED BG	
CHECK	

FINAL ANIMATION CHECK	
DATE	SUPERVISOR

REQUIRED ELEMENTS		RE-USE ELEMENTS	
BG		FROM	TO
OL		SCENE	SCENE
LEVELS		SPECIAL INSTRUCTIONS	

PROPS	

On the right side I have placed the folder element-listing box. All artwork that you create and place in the folder must be listed. This includes the date, who created the artwork, the field size, any special instructions, and a list of all of this scene's layout elements. **WHY?** This helps organize the artwork and direct any questions or concerns to the proper person and department. Oh, yes. It also helps ensure you get paid for your work.

An enlarged completed, generic folder element listing box is shown here.

The show name (here it states YEAR), production and scene number are supplied for you in the studio.  
BB-19 SC-145

Layout put in the FIELD GUIDE SIZE and checks off the layout box to show completion. Fill in the date completed and your name for each line you worked on.

This section is completed later by the animation and paint departments.

Depending on the studio, the director, supervisor or co-ordinator will do a final check and double check of all listed and actual contents in folder.

**RE-USE ELEMENTS** are listed as an element and the scene it FIRST appeared in the show.

**LIST ALL LAYOUT ELEMENTS** including:  
BG (background)  
OL (overlay)  
OL/UL (overlay/underlay)  
HC (held cel)

**NO ANIMATION** is listed here.  
**NO FIELD GUIDE** is listed here.

**SPECIAL INSTRUCTIONS** show hook-ups, match-cuts, camera rotation, pan direction, soft focus treatments.

SHOW	SEQUENCE	SCENE	
		DATE	FULL NAME
FIELD GUIDE			
LAYOUT			
KEYS			
INBETWEENS			
DOPE SHEETS			
ANIMATION			
SFX ANIMATION			
PAINTED BG			
CHECK			

FINAL ANIMATION CHECK	
DATE	SUPERVISOR

REQUIRED ELEMENTS		RE-USE ELEMENTS	
BG		FROM	TO
OL		SCENE	SCENE
LEVELS			
		SPECIAL INSTRUCTIONS	

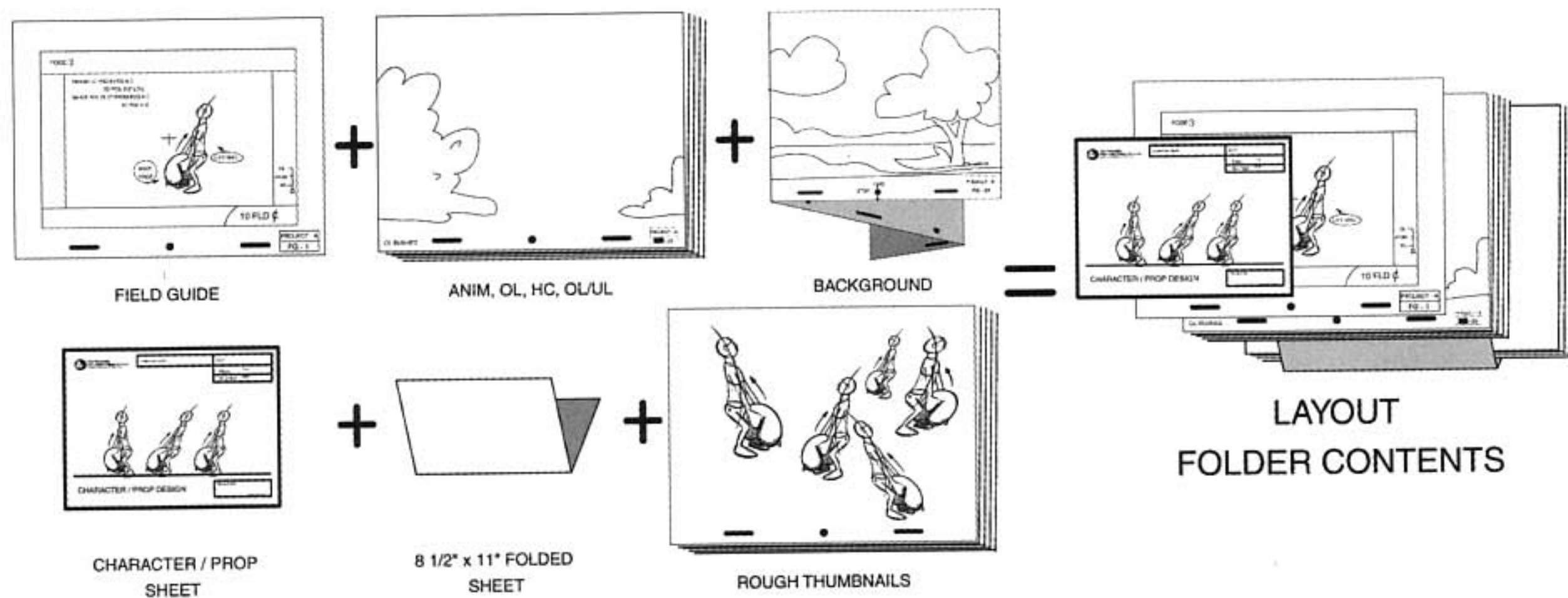
**RE-USE Elements** occasionally are necessary to save on production costs. There are two sides to the re-use elements area. On the left, it explains what the element is and what scene it originally came from, and on the right, it explains what the element is and what this scene is, now.



## COMPLETED LAYOUT PACKAGE:

This standard version of presenting and folding animation layout scenes match that of most animation studios. Understand how each is processed and what is the reason for doing so. If you hand in a folder that is not complete or organized as to meet studio standards your work will be returned for you to fix. Your supervisor will not do the work for you.

Layout Package generic compilation and order:



## POSE SHEETS:

If required by the studio, but rarely is, place all pose sheets face up before the FINISHED LAYOUT ELEMENTS bundle.

**FINISHED LAYOUT ELEMENTS** starting at the TOP layer:

1. Field Guide - pegs down into the folder.
2. Extra layout poses - labelled ANIM, in sequential order; 2 thru to the last, pegs down into the folder.
3. Elements OL, HC, and OL/UL - pegs down into the folder.
4. Background - pegs down into the folder.

## ROUGHS:

One company I worked for insisted that the layout artists include all rough thumbnails and full size drawing with their clean-up artwork. Here is how to package it in the layout folder.

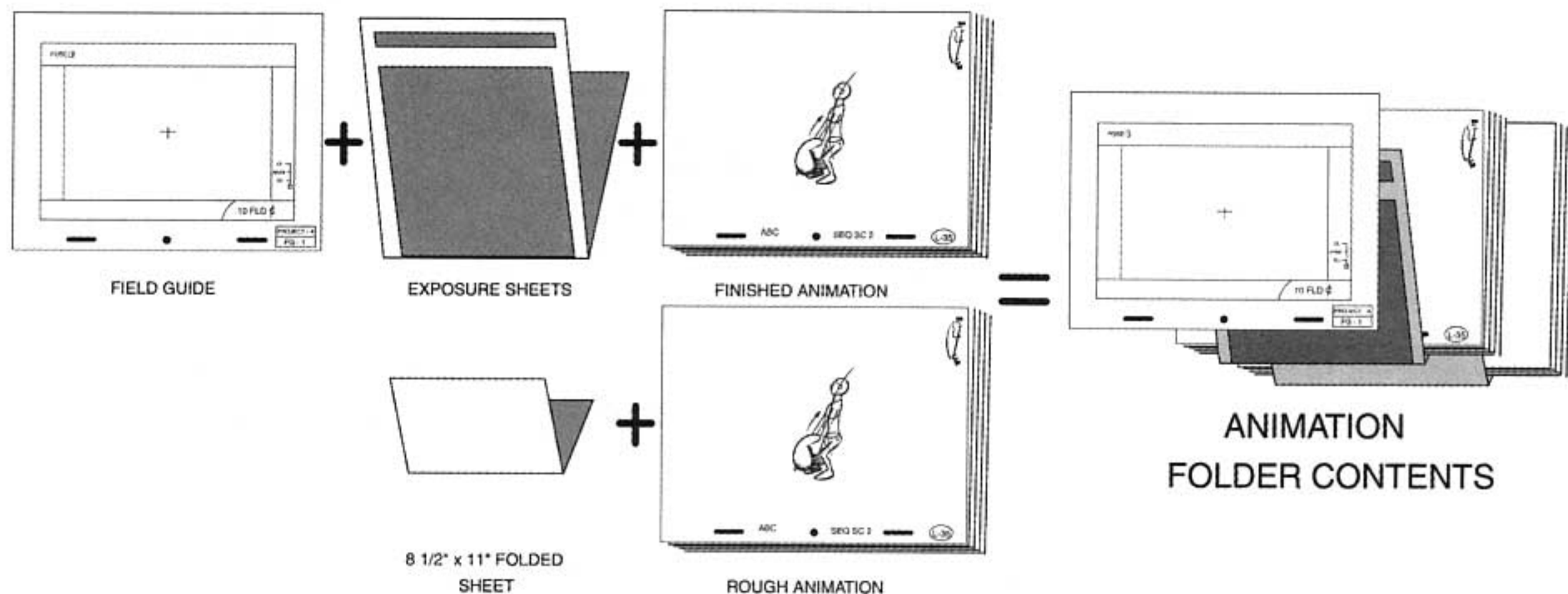
1. Placed with pegs down and face up in a folded 8 1/2 x 11 piece of paper.
2. Put roughs behind the FINISHED LAYOUT ELEMENTS bundle in the folder pegs down.

## COMPLETED ANIMATION PACKAGE:

Once the layout folder is complete and transferred to the animation department, the layout artist never sees the folder again. Many wannabe animators and layout artist ask me what happens to the layout material next. Quite a bit. The background, overlay-underlay, and held cels go to the background painting artist, the special effects animation goes to the SFX animators and the layout animation poses, depending on whether they have to be cleaned up or not, go to the animator as a suggestion for key poses.

By putting the finished animation inside the exposure sheets it doubles as a protector of the animation and a neat grouping of that scenes animation to be filmed. Rarely the half fold 8 1/2" x 11" is fit around any roughs or required supplementary material.

A generic Animation folder looks as follows:



### FIELD GUIDE:

1. Field Guides must include all required elements.
2. Place the FG face up, pegs down in the folder BEFORE the FINISHED ANIMATION bundle.

### FINISHED ANIMATION:

1. ALL animation must be in flipping order with drawing number one at the BOTTOM and the last drawing ON TOP.
2. The EXPOSURE sheet must be placed in order, page one on top, face up, around the animation paper pegs.
3. This bundle must be placed peg side INTO the protective labelled folder.

### ROUGHs:

1. Placed with pegs down and face up in a folded 8 1/2 x 11 piece of paper.
2. The roughs are placed BEHIND the FINISHED ANIMATION bundle in the folder pegs down.



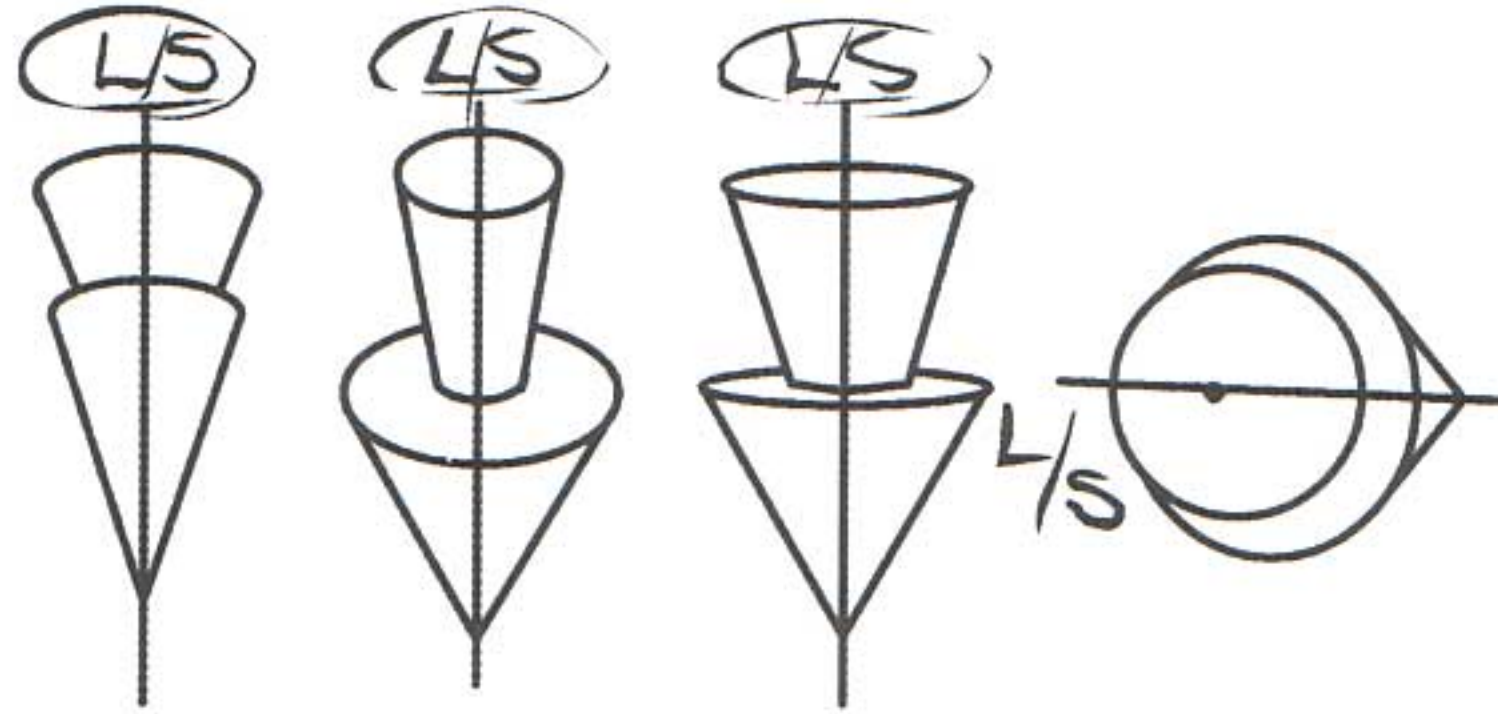
## TONAL STUDIES:

Lighting Source and Shadow  
Forms and Mass  
Mood and Atmosphere  
Realistic to Wonky  
Flash Background Layout

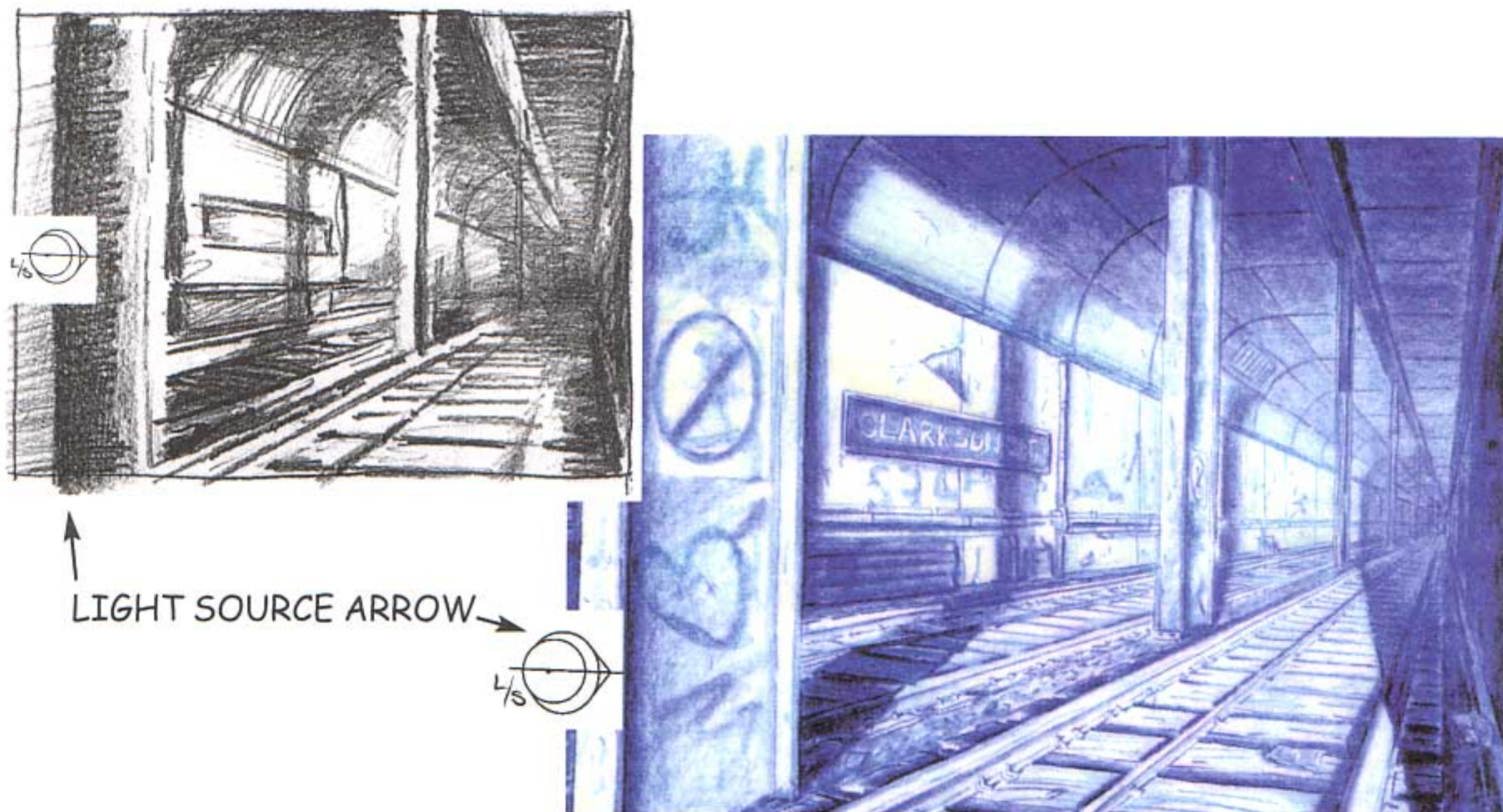


## LIGHT SOURCE AND SHADOW:

Light source is primarily for the benefit of the background painter. To assist in the creation of lighting and shadows, the layout artist will add Light Source Arrows to the background. The **3D ARROW** with a line through it, and the letters **L/S** can be placed anywhere on the layout, provided, the direction of the arrow reflects the direction of the light. Below are four of many possible angles for the light to travel.



Light and shadow are based on perspective methods. In this section I wanted to mention the 3D Arrows and their use. For further reading of light and shadow check out any art book or web page on the topic. Here are a few treatments of light source in a tonal stage of the process.



This is a great example of a very strong light source. Without accurate direction from the layout artist, the background painter would guess from the storyboard where shadow and light fall. I have supplied my thumbnail tonal with the finished blue tonal for comparison of detail, blocking in of shapes, and use of shade line.

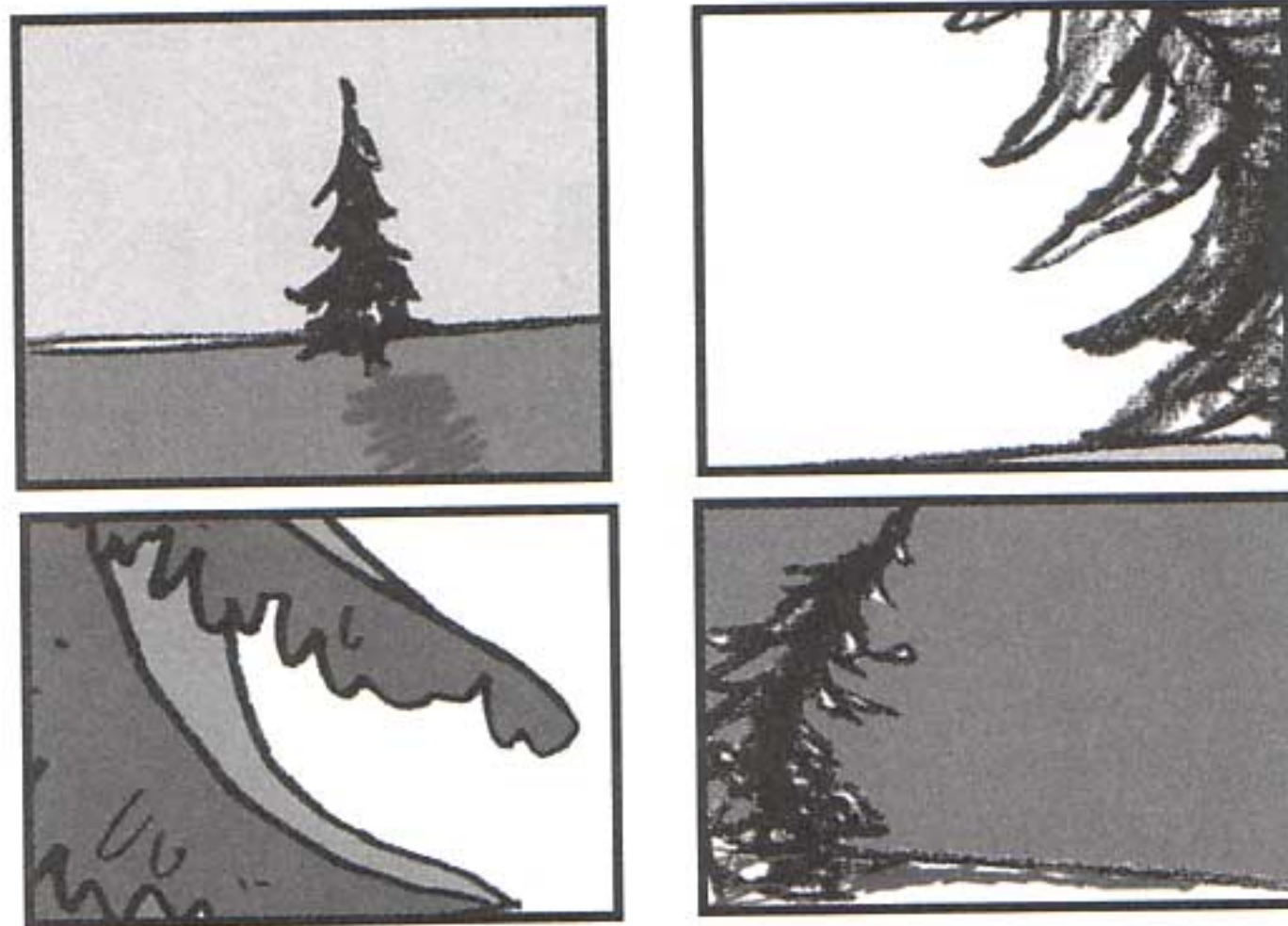


## FORM AND BLOCKING:

Form and Blocking, as explained earlier, are not that different from Form and Mass. The reason why I split this section up, was to first define one, two and three point perspective, and now, to define blocking in of shapes and form.

I think animation colleges and universities need to direct attention to blocking in shapes and forms in layout or even animation. By understanding how to block in layout elements so they physically read well and frame the action, this will also increase the silhouette strength of the animation characters. If by blocking in an object it becomes unrecognizable, adjust it so it is readable. Add texture to the most prominent item. Add halftone values to tie the areas of light and dark together. Walt Stanchfield has demonstrated this knowledge in many official and unofficial releases of his work. I suggest researching his name for further details.

Consider a rocky surface with only one pine tree. How we define that form in our composition also defines the emotional response we will get from the audience.



This example the use of foreground, mid-ground and distant elements are combined with perspective, form, and blocking in of shapes.

Although I have pushed it to the extremes, it clearly directs the eye to where I want it to go. The mood is defined and the composition works fine for character placement.





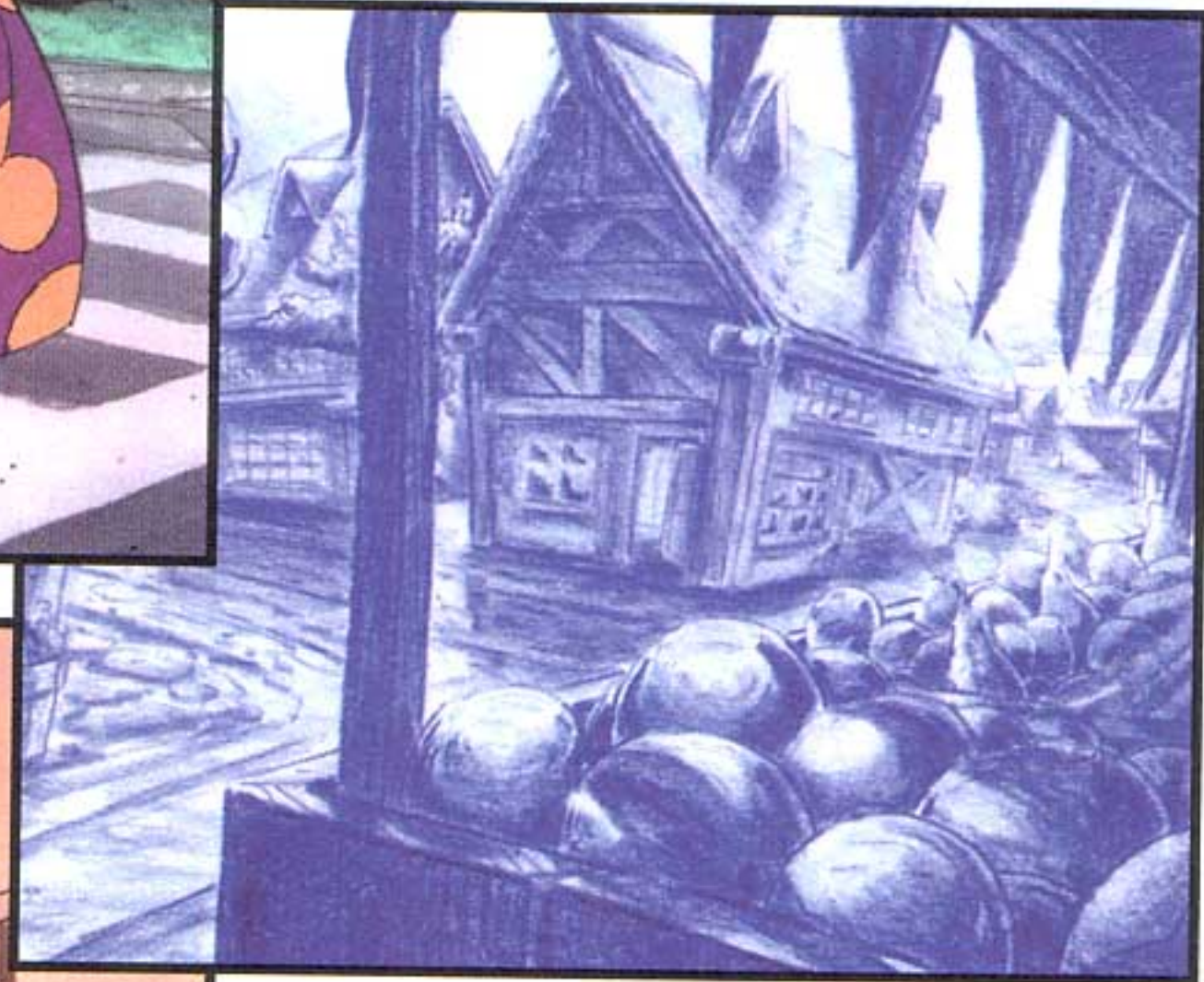
## MOOD AND ATMOSPHERE:

Mood and atmosphere within any scene or sequence has to be clear. If it is to depict fear, mystery, romance, sorrow, joy, or any other emotion the artwork must describe this.

For most layout work, the concentration is on linear drawing and tonal compositions. The use of colour is not as frequent. Creating a strong blue tonal is fantastic, but understanding how this drawing is taken to colour later on should be investigated.

Use of colour is used extensively to evoke emotion; red for anger, orange for warmth, blue for cold, yellow for sour, green for harmony, purple for romance. The list can continue forever. Slight variations or combinations of these colours can produce further emotions. There are many fine books on colour theory that I suggest you read, not just one or two, but many to see the variations in application and mediums.

Whether happy and fun or mysterious and menacing, background painting for animation is most often used to set the mood of the film. Here are a few examples.



Both the top and bottom frame were taken from my student animated film, "Honey, It's Time!" I have left the animation cels on the backgrounds.

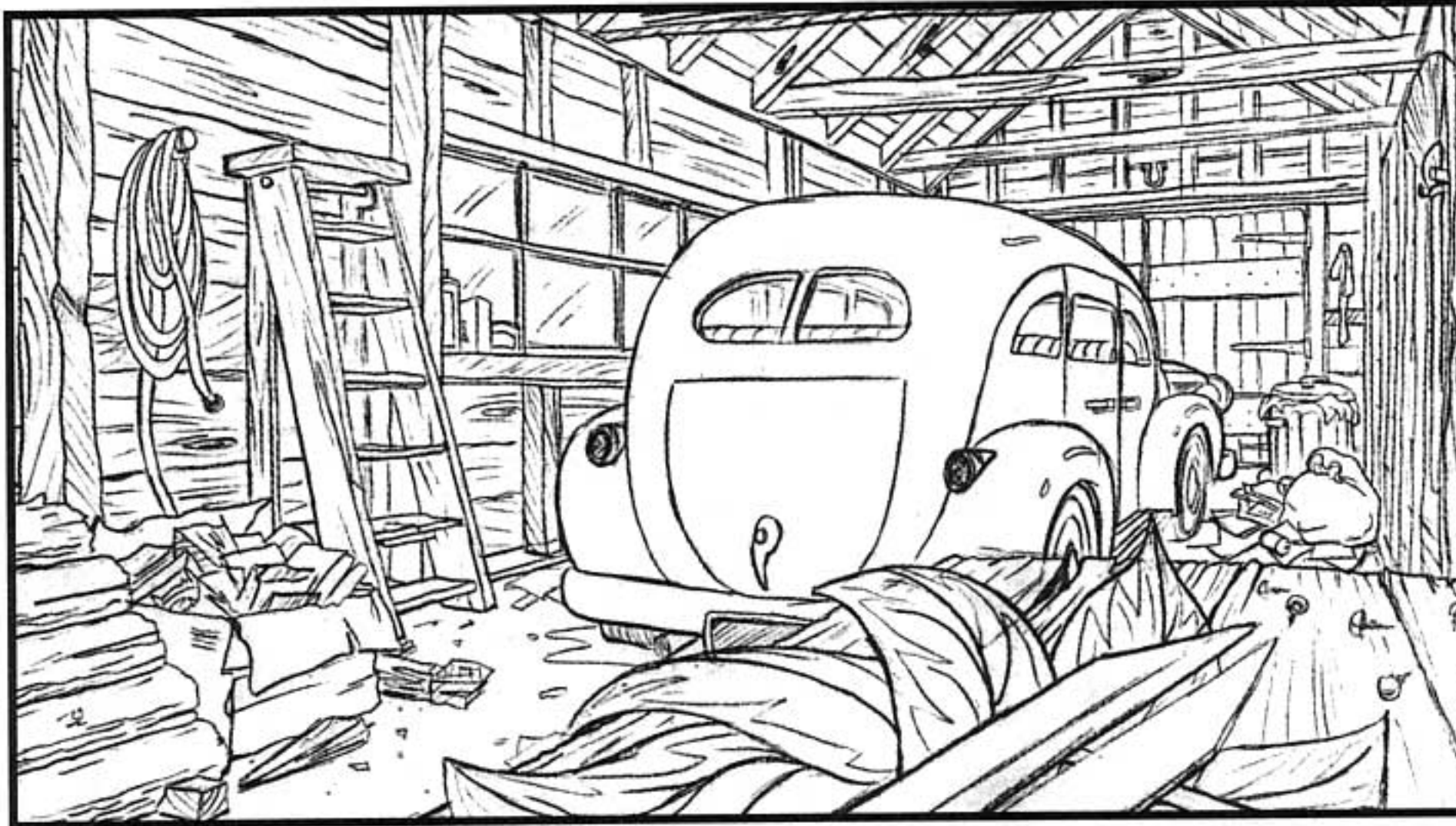
The blue tonal is of a rainy day.



## FROM REALISTIC TO WONKY:

Realistic or Wonky? The difference of each of these styles is based on the artistic interpretation on reality. Both contain relatively the same levels such as Background, Held Cels, Overlays and Overlay / Underlay. Both set a stage for character movement. The differences come from the creative application of design to produce surrealistic, realistic or fantasy derived artwork.

A **Realistic show style** is taken out of daily life with a slightly adjusted view of the environment.



A **Wonky show style** is exaggerating, distorting and even eliminating details we see in daily life.





## FLASH BACKGROUND LAYOUT:

### What is Flash?

Flash is a computer software program created by Macromedia. It is used for web, advertising and television animation. Our focus is with the animation layout portion of this program.

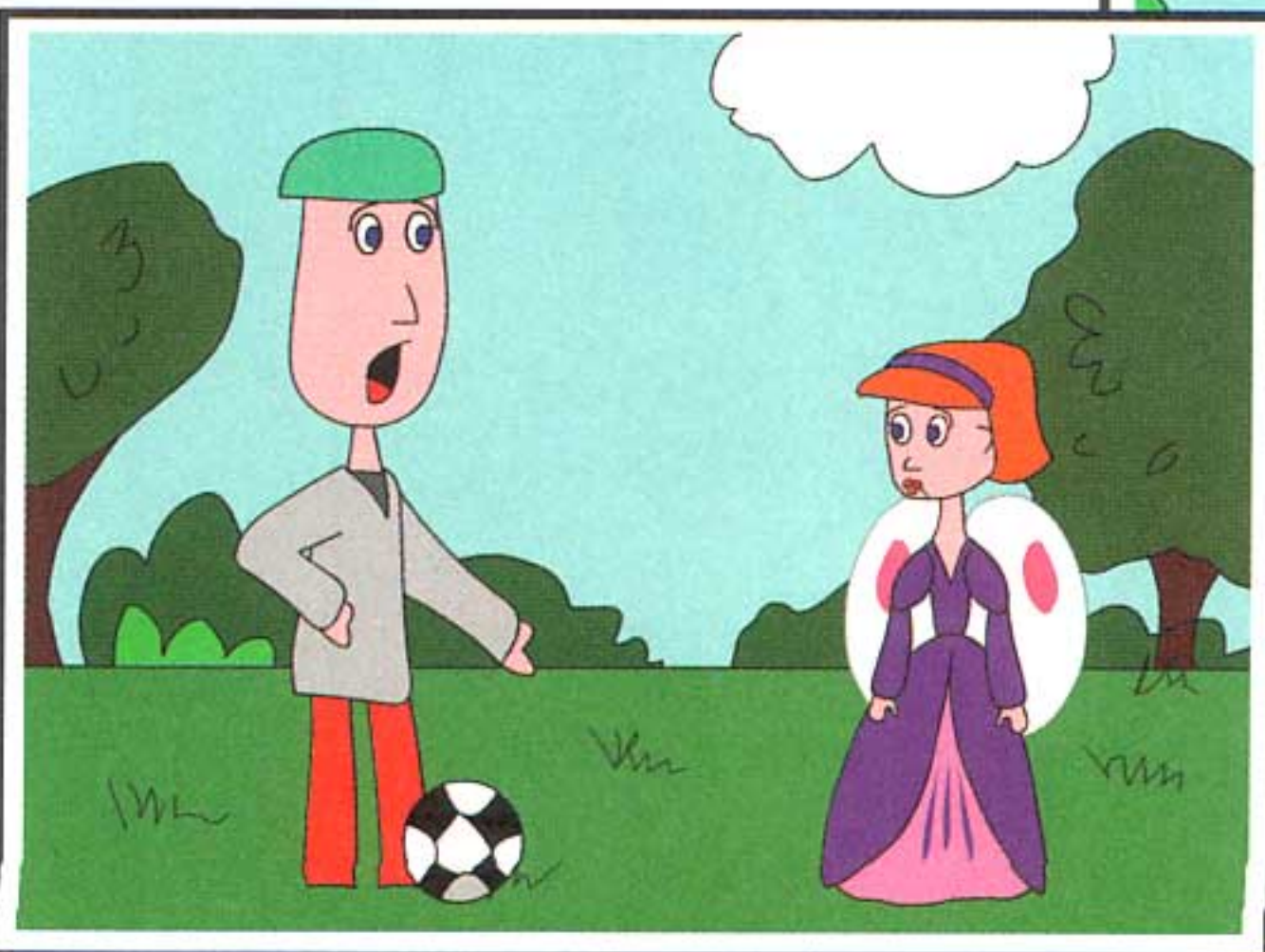
Setting up a layout background in Flash is no different than traditionally drawn artwork. The storyboard is read to create the environment then created using a mouse or a drawing tablet in the computer .

The creation time for Flash backgrounds tends to be very little from start to colour. The artist that creates the linear drawing usually digitally paints the background with the aid of a master background colour template (similar to a paint by number drawing where the sky is a number six for blue or the ground is number thirty-three for green).

The simplicity of the software allows layout elements such as Overlays, Held Cels, Overlay / Underlay and Backgrounds to be placed and manipulated in separate layers of the programs timeline. Camera moves can be plotted out and viewed instantly within the program with ease. How easily? The examples below show completed Flash layout backgrounds by a child.



Each of these Flash layout stills were created from my seven-year old daughter, Christina's storyboard titled, The Blue Fairy. Her style of drawing is easily retained when animated in the program.



Each layout has various layers,(levels), including animation as seen here. How many layers (levels) do you see in each layout?



## LAYOUT CHEATS AND TRICKS

Last Exercise  
Conclusion  
Further Readings  
"IF" Poem

## CHEATS AND TRICKS OF THE INDUSTRY

Use this page as a notebook to jot ideas and suggestions that will be thrown at you in the industry. I will start you off with five solid Animation Layout Background tips.

1. THINK before you draw!
2. When thumbnailing a location, save time when transferring to the required field size by using a photocopier to enlarge the thumbnail to the television cut off on the field guide. This guarantees accuracy of fielding and staging by keeping artwork within the broadcast boundaries.
3. If a field guide does not increase or decrease during a Pan BG only one stationary field guide need be created. If the field guide does increase or decrease, a new field guide must be placed at the start position and at the stop position as suggested on the storyboard.
4. Plan any scene thoroughly by creating a floor plan with rudimentary shapes in place of characters, and objects. Draw a 180-degree axis line over top of this with various required camera positions on it.
5. If you do not understand something, be brave enough to ask someone who does know. Someday they may have a question for you.
6. Treat the storyboard panel as the TV CUT-OFF when designing layout material! What you see is what you get on the television.
7. Be eager and willing to learn every day, from everyone.
8. "We are not training the artist for the next four years, we are training them for the next forty years of their lives." Kaj Pindal, National Film Board of Canada
9. To speed layout production complete the complicated scenes first. Start with your establishing shots, mid-shots and finish with any close up shots and colour cards.
10. To remember which is the left or right side of the registration peg hole, think opposites. If the start line is one inch to the right of the centre peg, the direction is: POS (position)+ (peg hole name) one inch left of centre. POS A 1" LO ¢



## **EXERCISES:** LAST ASSIGNMENT

This is the last exercise of this book, Animation Background Layout: From Student to Professional, but it will not be your last. This exercise is in two parts.

### **The first part is as follows:**

Start with a sketchbook and a pencil and draw everything that you see. Draw things that is of interest to you and draw things that are uninteresting to you, from a distance and from within two inches of your nose. The more you observe and understand your surroundings, the more confidence you will have in drawing; even in drawing a straight line. Fill up your sketchbooks with flowers, plants, trees, toasters, benches, cans, glasses, spiral sockets, nuts and bolts. Then re-draw them on a new sheet of paper again and again.

### **The second part is as follows:**

Re-read this book from the very first chapter to the very last chapter again. Do all of the exercises and recreate the drawings within this book.



# Animation

## BACKGROUND LAYOUT:

### *From Student to Professional*

## CONCLUSION.

The information in this book was designed to delve into the mysterious world of background layout in a easy to read, step-by-step format for the student through to the professional artist, based on my industry experience as a layout artist, supervisor and College Instructor.

**The role of the animation background layout artist is to insure that within an animated show the blue prints are technically approached and designed.**

Never stop asking, "WHAT, HOW, and WHY" something is created. Natural talent is within everyone, some more than others. It must be developed and diversely explored. That may be easy to say, but it is quite easy if you break it down step-by-step.

Start by never settling for just one person's opinion or theories. In animation there is such diversity in material. Examine and study hundreds of different styles to come to your own conclusion of what works best for you.

Do not confuse this with imitation, which is something you can do once you have found your unique style. Learn the basics, listen to peers, question your instructors and ask yourself, "What will I learn new today?"

To be honest, re-read this book from the very first chapter to the very last chapter. Repetition is part of retention. There is a considerable amount of information in this book that should be reviewed several times. That is the way I designed it.

Learn the process of how layout is created and understand that most animation studios are designed with a budget in mind. Creativity is not stifled because of this. If not anything, working on one show style will increase your artistic skills and allow you to investigate ideas at one time were too complex to visually explain and draw.

Never consider that everything is good enough or that you kind of understand. I have seen people settle for being average in the classroom and in the workforce. Is it for a lack of ambition or are they caught in a comfort zone? New things are a challenge to learn, but if taught properly, the challenge becomes not a giant leap to success, but rather a series of mini triumphs on the road to the end goal.



This book, Animation Background Layout: From Student to Professional was designed with those mini steps in mind. By starting at an introductory neutral level we investigated terms and sighted examples of perspective. We then explored the use and terms of camera shots, how to compose the picture and then set the stage for the characters to act. By creating thumbnail sketches of different elements and how these mini pictures form a storyboard we applied and reviewed the pervious chapters.

With the basic well in place, we developed a working knowledge of the tools of the layout trade and support material that allowed us to create different camera moves. Next we applied the pervious knowledge to creating and labelling a layout as would be produced in a studio with different styles and applications. To finish off the material taught, we explored different media treatment and even a few secrets of the layout trade.

I congratulate you and I thank you! Keep drawing!

Mike S. Fowler



## COMMENTS?

I am interested in what you have to say about this book and about the material that I have presented.

This layout book was designed as progressive step-by-step animation layout textbook and resource guide to assist in the understanding of layout concepts for the starting artist, animation student, college and university instructors and industry professionals.

I look forward to any information you think was explained well or missed. I would also like to hear your layout trick for completing work for future printings of this book.

Please forward your comments, suggestions, omissions or additions by email to:

**msfowlerarts@yahoo.ca**



## FURTHER READINGS:

The majority of the useful books in this list are still in print. Those that are not, they are worth tracking down to read.

Acting for Animators: (Ed Hooks) ISBN 0-325-00229-0

Animal Drawing: Anatomy and Action for Artists: Charles Knight ISBN: 048620426X

Animation from Script to Screen: Shamus Culhane ISBN: 0-312-05052-6

Bridgman's Life Drawing: George B. Bridgman ISBN: 0-486-22710-3

Chuck Amuck: Chuck Jones ISBN: 0-374-52620-6

Constructive Anatomy: George B. Bridgman ISBN: 0-486-21104-5

Drawing the Draped Figure (The Seven Laws of Folds): George B. Bridgman ISBN: 0486418022

Perspective Made Easy: Ernest R. Norling, Dover 0-486-40473-0

Perspective for Artists: Rex Vicat Cole, ISBN: 0-486-22487-2

Preston Blair How to Animate Film Cartoons: (Walter Foster) ISBN 1-56010-069-9

Preston Blair How to Draw Cartoon Animation: (Walter Foster) ISBN 0-929261-51-8

Simplified Drawing for Planning Animation: Wayne Gilberts (Sorry no ISBN Number)

That's All Folks! Art of Warner Bros. Anim.: Steve Schneider: ISBN: 0-8050-1485-3

The Animator's Survival Kit: Richard Williams (ISBN 0-571-20228-4)

The Animators Workbook: Tony White: ISBN: 0-8230-0229-2

The Art of Animal Drawing: Construction, Action Analysis, Caricature: Ken Hultgren ISBN: 0486274268

The Illusion Of Life: Frank and Ollie (Disney)

The Screenwriter's Bible: (David Trottier) ISBN 1-879505-44-4



## IF

*If you have a problem, think about it.*

*If you are unsure, talk to a peer.*

*If you do not understand, read the instructions.*

*If you think life is unfair, believe it and move on.*

*If you feel challenged, you are learning.*

*If you think it is too easy, double-check it.*

*If you are late, admit it but do not accept it.*

*If you have an excuse, fix it so there is none.*

*If you are "gonna" do it, just do it.*

*If you wonder what it would be like, live it.*

*If you fear the challenge, challenge the fear.*

*If you think you are alone, the rest of us think the  
same way too-sometimes.*

*If you spend your life asking, "What if",  
have you had a life?*



## NOTES:







# Animation

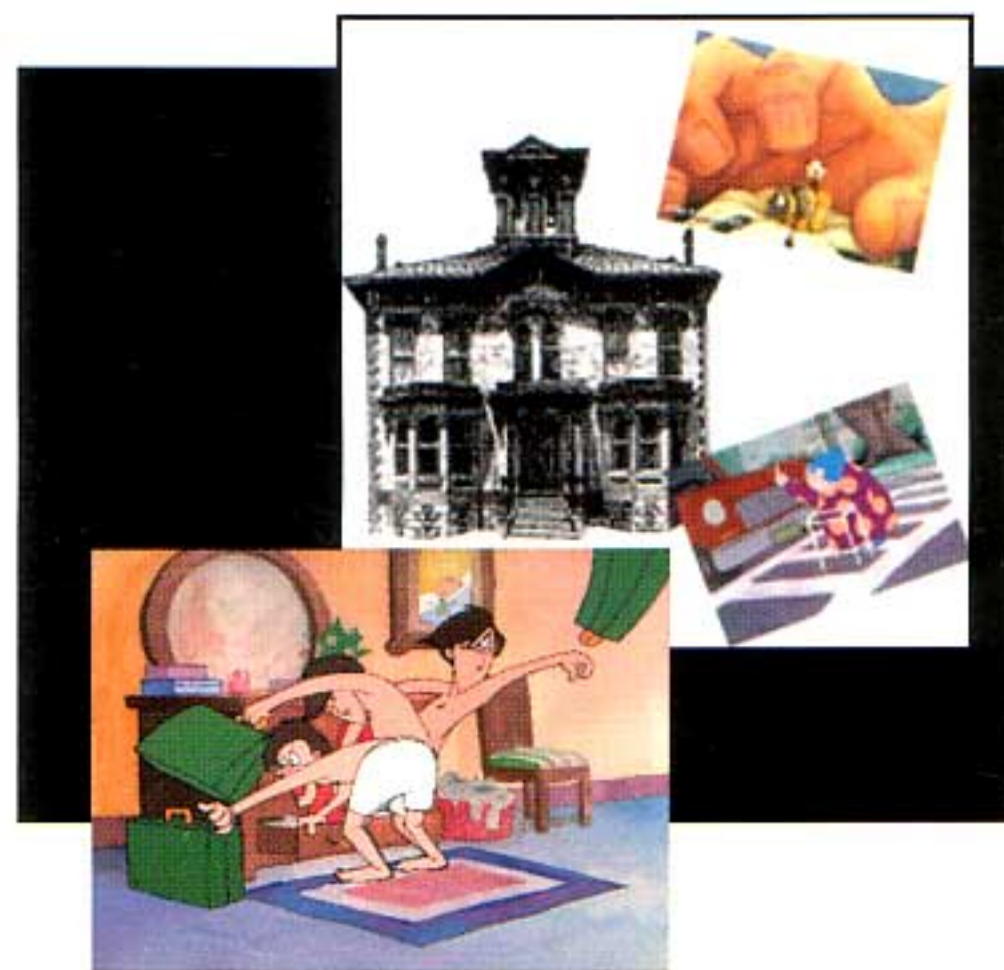
## BACKGROUND LAYOUT:

### *From Student to Professional*

In this essential and educational easy-to-follow book, animation layout artist, supervisor and college instructor, Mike S. Fowler, illustrates the purpose and function of animation layout.

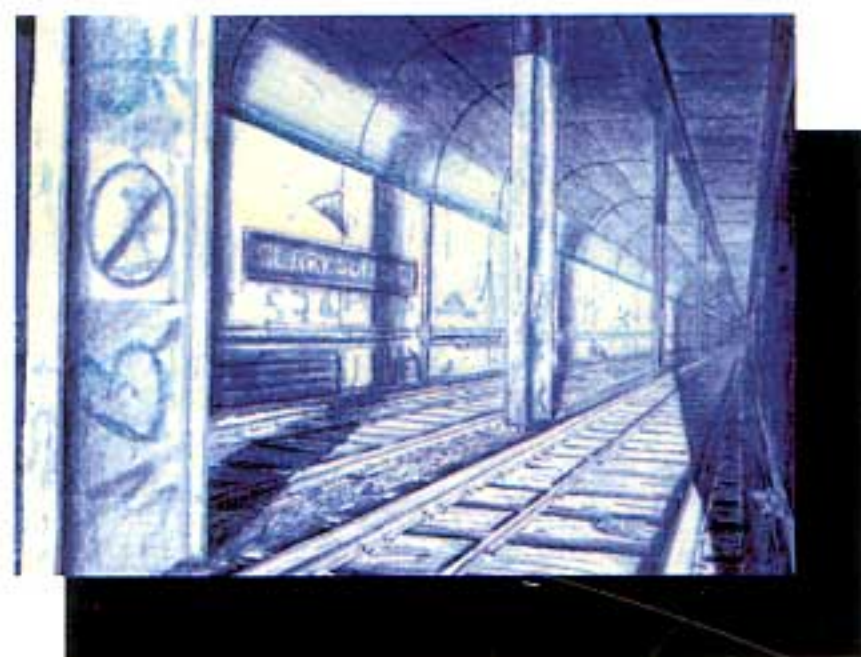
He creates an easy to follow format with so much information and diagrams people of any animation skill level can learn something new. He answers, "How is it made?" "Why is it designed?" and "What's the purpose and function of each component of layout?"

This is a dynamic instructional book that speaks at a one-to-one level for easy comprehension. From the inquisitive beginner, the college animation student who wants to better prepare for a job, to the animation industry professionals, everyone will learn something new in this book.



**"I would recommend this book to anyone studying for or working in the animation industry. Easy to understand, this step by step guide should be on every animator's desk as a handy reference tool."**

Author and Animation / Drama Instructor - Angi Garofolo



Illustrated and explained in this book are: Perspective, Perspective Grids, Composition, Staging, Fielding of Characters, Camera Moves, Thumbnail Sketches, Tonal Drawings, Storyboard, Model/Pose/Prop Sheets, Location Designs, Field Guides, Level Sketches, Compilation of a Layout Folder, Tips and Tricks, and much more.

**"The mother lode of layout! A rare treasure, in which you'll soon discover, holds a goldmine of information that you will want to tap into again and again!"**

Animator, Layout and Animation Instructor - Rick Knowles

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